January · 1953

the Magazine of
Appliance and
Metal Products
MANUFACTURING

finish

FROM RAW METAL TO FINISHED PRODUCT

WE ARE prepared to furnish prompt service on practically all chemicals and colors used by the ceramic industries. This service includes close attention to individual requirements by practical color engineers who take a personal interest in the customer's production procedures and sales objectives.

COLORS: **Color Oxides; Screening Colors; Smelter Color Compounds; Printing, Graining, Stamping, Banding and Decalcomania Colors.**

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Aluminum Hydrate
Ammonium Carbonate
Antimony Oxide
Antimony, Black Needle
Arsenic Oxide, White
Barium Carbonate
Barium Chloride
Barium Molybdate
Bentonite
Bone Ash
Borax
Boric Acid
Cadmium Carbonate
Cadmium Sulphide
Calcium Carbonate
Cerium Hydrate
Chromium Oxide
Clay, Enamelers'
Cobalt Carbonate
Cobalt Compounds
Cobalt Nickel Compounds
Cobalt Oxide
Cobalt Sulphate
Copper Oxide
Cryolite
Epsom Salts
Feldspar
Flint
Fluorspar
Gum Arabic
Gum Tragacanth
Iron Chromate
Iron Oxides
Lead Chromate
Red Lead
Litharge
Lithium Carbonate
Lithium Metasilicate
Magnesium Carbonate
Manganese Dioxide
Molybdenum Compounds
Nepheline Syenite
Nickel Oxide, Gray
Nickel Oxide, Black
Nickel Sulphate
Opax
Potassium Bichromate
Potassium Carbonate
Potassium Nitrate
Potassium Silico Fluoride
Powder Blue
Pyrophyllite
Rosin
Rutile, Powdered
Soda Ash
Sodium Aluminate
Sodium Antimonate
Sodium Bichromate
Sodium Fluoride
Sodium Nitrite
Sodium Silicate
Sodium Silico Fluoride
Superpax
Talc
Tin Oxide
Titanium Dioxide
Urea Crystals
Whiting
Zinc Oxide
Zircon, Milled
Zircopax
Zirconium Silicate
Zirconium Oxide

SUPPLIES: **Screening Oils; Screening and Spraying Equipment; Lining Blocks, Porcelain and Silex; Porcelain Balls; Rounded Flint Grinding Cubes; French Flint Pebbles; Ball Mills, Laboratory and Production; Porcelain Jar Mills, Laboratory and Production; Paste Grinding Mills.**

CERAMIC COLOR & CHEMICAL MFG. CO.
NEW BRIGHTON PA.

January · 1953

VOL. 10 • NO. 1

FEATURES

MISCELLANEOUS

finish

MONTHLY TRADE PUBLICATION

Established January 1944

Published by

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Chicago 1

Telephone CEntral 6-1229

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Western editor • GILBERT C. CLOSE
Circulation manager • BETTY TURNQUIST
Customer service • A. O. BERNHARD
Customer service • DANA CHASE, JR.
(on leave with the U.S. Army — Korea)

Technical consultants
PROF. A. I. ANDREWS
PROF. R. M. KING
PROF. L. L. CARRICK
JAMES M. LEAKE
RALPH F. BISBEE

Accepted under the act of June 5, 1934, at Aurora, Illinois, authorized January 7, 1948.

CCA NBP

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METAL PRODUCTS MANUFACTURING FROM RAW METAL TO FINISHED PRODUCT

McDANEL

Metal Covered

Porcelain Laboratory Mill Jars

These McDanel Metal Covered Jars are unbreakable in normal routine use.

That means longer life. While the price is competitive with the all porcelain jars the longer service spells out a distinct saving.

There is a further saving in the porcelain lining which may be used until worn as thin as the paper on which this message is printed with no chance of spilling the batch.

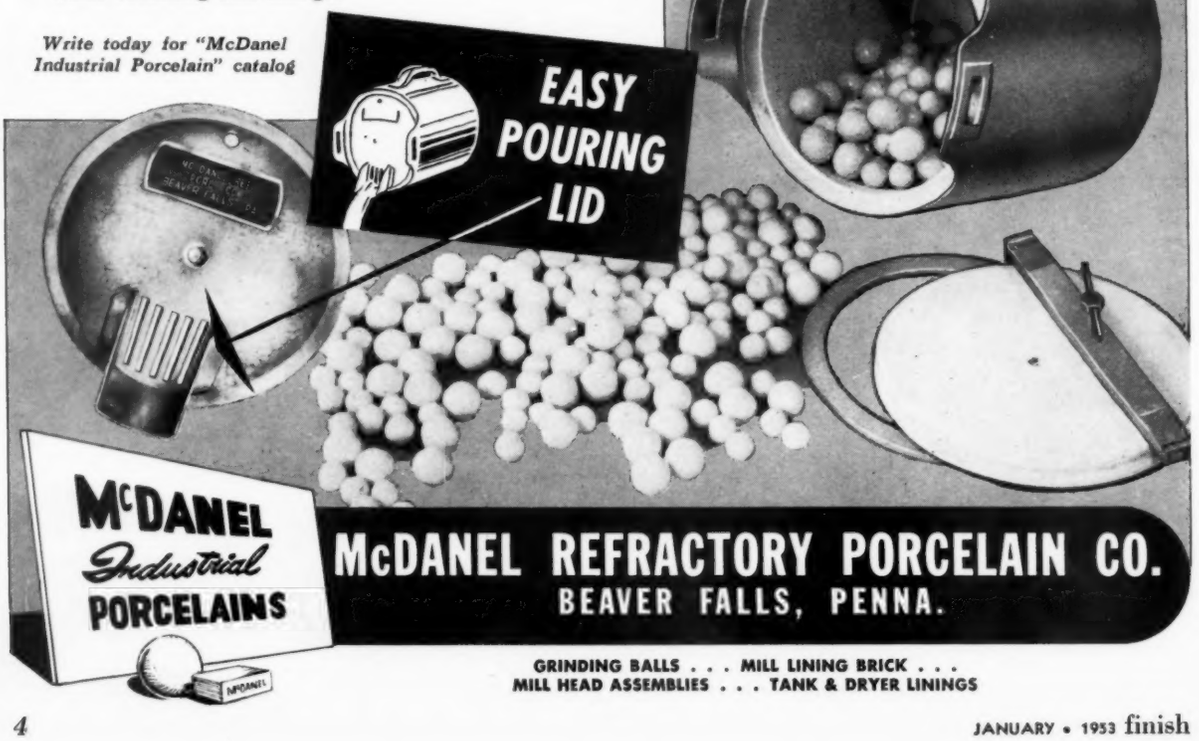
Porcelain Linings have straight sides and may be easily and thoroughly cleaned.

Made for both Roller and Cradle type mills. The Roller type jars have non-slip live rubber tires, which are so constructed to stay in place at all times.

Other features include live soft rubber gasket with close fitting cover that may be tightened by hand— no danger of cracking cover — no chance of leaking — Jar and Cover are surface ground after firing to make absolute fit — Neoprene gaskets for oil base grinding.

Dischange covers are available for easy pouring while retaining ball charge.

Write today for "McDanel Industrial Porcelain" catalog



McDANEL *Industrial* PORCELAINS

McDANEL REFRACTORY PORCELAIN CO.
BEAVER FALLS, PENNA.

GRINDING BALLS . . . MILL LINING BRICK . . .
MILL HEAD ASSEMBLIES . . . TANK & DRYER LININGS

February • 1953

VOL. 10 • NO. 2

FEATURES

MISCELLANEOUS

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METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

"D-Enameling* has transformed scrap loss into profitable sales."

says
Wendell C. Davis
President
Cribben & Sexton

The profitable experience of Cribben & Sexton Company, manufacturers of Universal gas ranges, typifies that of other appliance manufacturers who have learned how D-Enameling transforms defective enameled parts which were formerly complete loss as scrap into first class production parts that now contribute to the profit picture. In fact, D-Enameling has made it possible for Cribben & Sexton to recover up to 97% of defective parts.

CRIBBEN AND SEXTON COMPANY
UNIVERSAL GAS APPLIANCES
700 N. SACRAMENTO BOULEVARD
PHONE VAN BUREN 6-4800
CHICAGO 12

BRANCHES
BOSTON LOS ANGELES
BUFFALO NEW YORK
DALLAS PITTSBURGH
DENVER SALT LAKE CITY
HOUSTON SAN FRANCISCO

New Process D-Enameling Corp.
Highland and New Haven Avenues
Aurora, Illinois

Gentlemen:

In a recent review of company records, I noted the excellent results we have achieved in reduction of scrap loss since starting to use your D-enameling services in 1949.

We have recovered as high as 97% of defective parts which-otherwise would have been complete loss as scrap. In fact, we can very well say that D-Enameling has transformed scrap loss into profitable sales.

Your company is rendering a valuable service to the porcelain enamel industry and to the nation by making possible the fullest utilization of steel. Keep up the good work. We're with you 100%.

Very truly yours,
CRIBBEN AND SEXTON COMPANY

wcd/es

Wendell C. Davis
President

ESTABLISHED 1871

D-Enameling can very well mean the difference between profit and loss. It will pay you to investigate the possibilities that D-Enameling offers *you*. In fact, we'll prove its benefits at our expense! All you need do is write, wire or phone us so that we can make arrangements to D-Enamel three or four parts *NO CHARGE*. When you see the results and learn how inexpensive D-Enameling really is . . . how it may help your profit picture, you'll be sold. Just get in touch with us. Do it today . . . now!

*D-ENAMELING IS A PATENTED PROCESS.

D-ENAMELING SAVES DOLLARS...
D-ENAMELING SAVES STEEL

Since October 1949, D-Enameling has saved over 15,000 tons of fabricated steel parts.

New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

March • 1953

VOL. 10 • NO. 3

FEATURES

MISCELLANEOUS

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Accepted under the act of June 5, 1934, at Aurora, Illinois, authorized January 7, 1948.

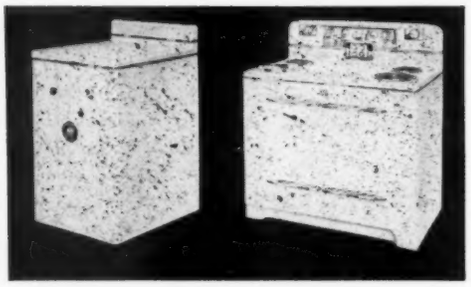
CCA • NBP

finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

"WE HAVE NOT SCRAPPED A TOP, BACKGUARD OR FRONT"

Says **H. J. BERMAN**
Executive Vice President
A. J. Lindemann & Hoverson Company



The profitable steel saving experience of A. J. Lindemann & Hoverson Company, manufacturers of electric ranges, water heaters, refrigerators and home freezers typifies that of other appliance manufacturers who have learned how D-Enameling* transforms defective enameled parts into first class production parts that now contribute to the profit picture. In fact, D-Enameling has made it possible for Lindemann and Hoverson to recover all defective tops, backguards and fronts which otherwise would have been a complete loss as scrap.

A. J. LINDEMANN & HOVERSON COMPANY

ELECTRIC RANGES · WATER HEATERS · REFRIGERATORS · HOME FREEZERS

MILWAUKEE 13, WISCONSIN

New Process D-Enameling Corporation
Highland & New Haven Avenue
P. O. Box 168
Aurora, Illinois

Gentlemen:

I was quite surprised when I reviewed orders issued to your good company to find the extent to which we have been using your facilities. Since we started with you two or three years ago we have not scrapped a top, backguard or front and have been able to save very valuable and scarce vitreous enamel steel.

We expect to continue using your facilities in the future thereby making possible a 100% use of the scarce steel.

Sincerely yours,
A. J. LINDEMANN & HOVERSON CO.
H. J. Berman
H. J. Berman,
Ex.-V.-P.

HJB/ew

D-Enameling can mean the difference between profit and loss. It will pay you to investigate the possibilities that D-Enameling offers you. In fact, we'll prove its benefits at our expense! All you need do is write, wire or phone us so that we can make arrangements to D-Enamel three or four parts NO CHARGE. When you see the results and learn how inexpensive D-Enameling really is . . . how it may help your profit picture, you'll be sold. Just get in touch with us. Do it today . . . now!

*D-ENAMELING IS A PATENTED PROCESS

D-ENAMELING SAVES DOLLARS... D-ENAMELING SAVES STEEL

Since October 1949, D-Enameling has saved over 20,000 tons of fabricated steel parts.

New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

April · 1953

VOL. 10 • NO. 4

FEATURES

MISCELLANEOUS

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CCA NBP

finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

May · 1953

VOL. 10 • NO. 5

finish

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CCA • NBF

finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

"D-Enameling*...

a service of economic benefit"

says
H. E. KENITZ
Vice President
Globe-American Corp.

GLOBE AMERICAN CORPORATION
EXECUTIVE OFFICES
Kokomo, Indiana

New Process D-Enameling Corporation
Highland & New Haven Avenues
Aurora, Illinois

Gentlemen:

Your organization is to be commended for having applied production and quality control methods to a process which for years was little more than a means of salvaging defective vitreous enameled parts. In so doing, you have converted D-Enameling into a service of economic benefit to all who process vitreous enameled parts. Your continuing success is our sincere wish.

Yours very truly,
GLOBE AMERICAN CORPORATION
H. E. Kenitz
Vice President

HEK:pmp

The successful experience of Globe-American Corporation typifies that of other appliance manufacturers who have learned how D-Enameling transforms defective enameled parts which were formerly complete loss as scrap into first class production parts that now contribute to the profit picture. As Mr. Kenitz points out in his letter, D-Enameling is a service of economic benefit.

D-Enameling can very well mean the difference between profit and loss. It will pay you to investigate the possibilities that D-Enameling offers you. In fact, we'll prove its benefits at our expense! All you need do is write, wire or phone us so that we can make arrangements to D-Enamel three or four parts NO CHARGE. When you see the results and learn how inexpensive D-Enameling really is . . . how it may help your profit picture, you'll be sold. Just get in touch with us. Do it today . . . now!

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D-ENAMELING SAVES STEEL

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New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

June · 1953

VOL. 10 • NO. 6

FEATURES

MISCELLANEOUS

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finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

for surfaces that need repeated cleanings

Furious scrubbing—that's the treatment this grimy surface will get. Mother will scour his face until it shines again. And she'll do the same to the titania porcelain enameled surfaces in the kitchen.

TITANOX-TG non-pigmentary titanium dioxide is specially processed for these enamels The controlled chemical and physical properties of TITANOX-TG speed production and lower costs. For the often desired delicate blue-white tints, TITANOX-TG-400 is constant and uniform in bluing effect.

Titanium Pigment Corporation,
111 Broadway, New York 6, N. Y.; Atlanta;
Boston 6; Chicago 3; Cleveland 15;
Los Angeles 22; Philadelphia 3; Pittsburgh 12;
Portland 9, Ore.; San Francisco 7.
In Canada: Canadian Titanium Pigments
Limited, Montreal 2; Toronto 1.

®TITANOX
brightest name in the finish

TITANIUM PIGMENT CORPORATION
Subsidiary of NATIONAL LEAD COMPANY

1596

July · 1953

VOL. 10 • NO. 7

FEATURES

MISCELLANEOUS

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August · 1953

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September • 1953

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METAL PRODUCTS MANUFACTURING
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MEETINGS

ENAMEL INSTITUTE FORUM

Porcelain Enamel Institute, annual Shop Practice Forum, Ohio State University, Columbus, Sept. 16-18.

INSTRUMENT CONFERENCE

Instrument Society of America, National Instrument Conference and Exhibit, Chicago, September 21-25.

PEI ANNUAL MEETING

Porcelain Enamel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., September 30-October 2.

METAL STAMPERS MEETING

Pressed Metal Institute, annual meeting, Bellevue-Stratford Hotel, Philadelphia, October 7-10.

PACKAGING FORUM

Packaging Institute, annual forum, Hotel Statler, New York City, October 12-14.

NATL. METAL EXPOSITION

National Metal Exposition, Public Auditorium, Cleveland, Ohio, October 19-23.

INDUSTRIAL PACKAGING SHOW

Society of Industrial Packaging and Materials Handling Engineers, annual Industrial Packaging and Materials Handling Exposition, Short Courses and Competition, Mechanics Hall, Boston, Mass., October 18-24.

AMERICAN GAS ASSN. MEETING

American Gas Association, annual Convention, Keil Auditorium, St. Louis, October 26-29.

PAINT, VARNISH MEETING

Federation of Paint and Varnish Production Clubs, Chalfonte-Haddon Hall, Atlantic City, October 29-31.

October · 1953

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FROM RAW METAL TO FINISHED PRODUCT

MEETINGS

VACUUM CLEANING, HOME LAUNDRY CONFERENCES

National Home Vacuum Cleaning Conference and National Home Laundry Conference, November 4 and 5-6, respectively, Hotel Commodore, New York City.

ENAMELER CLUB MEETINGS

Central District Enamelers Club, tour of Armco Steel Corporation plant, Middletown, Ohio, November 6.

Eastern Enamelers Club, Sylvania Hotel, Philadelphia, December 5.

Midwest Enamelers Club, LaSalle Hotel, Chicago, December 12.

REFRIGERATION EXPOSITION

Refrigeration Equipment Manufacturers Association, all-industry refrigation and air conditioning exposition, Public Auditorium, Cleveland, Ohio, November 9-12.

ELECTRICAL MFRS. MEETING

National Electrical Manufacturers Association, annual meeting, Haddon Hall Hotel, Atlantic City, November 9-12.

CHICAGO STAMPERS

Chicago District of Pressed Metal Institute, Graemere Hotel, Chicago, November 17.

COOKING, HEATING MFRS.

Institute of Cooking and Heating Appliance Manufacturers, December 7-8, Netherland Plaza Hotel, Cincinnati.

KITCHEN CABINET MFRS.

Steel Kitchen Cabinet Manufacturers Association, Chicago, December 9.

December · 1953

VOL. 10 • NO. 12

FEATURES

MISCELLANEOUS

finish

MONTHLY TRADE PUBLICATION

Established January 1944

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A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. Includes technical and practical information on plant facilities and manufacturing problems from raw metal to safe delivery of the finished product, with special emphasis on fabrication, metal preparation, metal finishing, assembly, and packaging and shipping.

Free controlled circulation to management, purchasing, engineering and key plant personnel in metal product manufacturing plants. To others, subscription price is $5.00 per year, domestic. To all other countries $8.00 per year (U.S. funds).

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Accepted under the act of June 5, 1934, at Aurora, Illinois, authorized January 7, 1948.

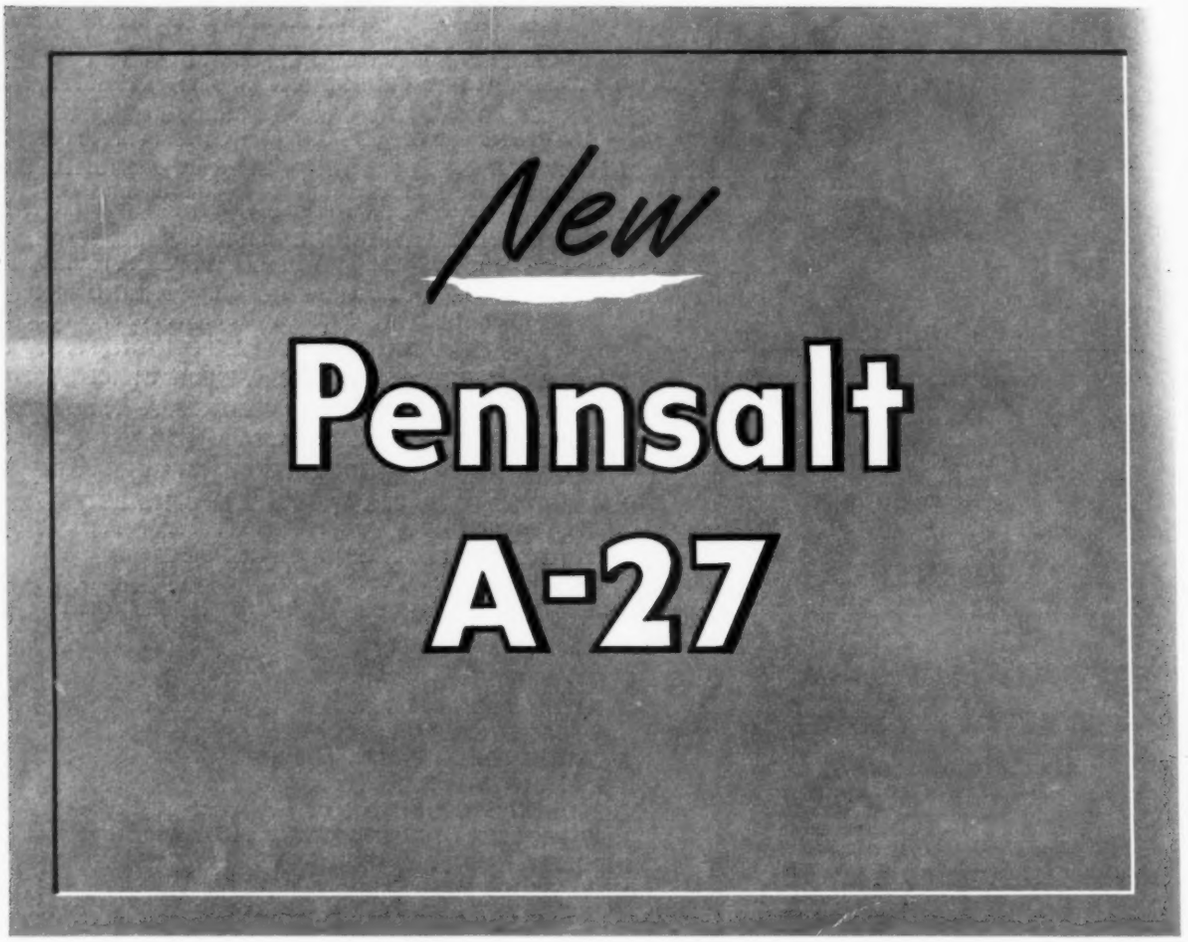
CCA NBP

finish

METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

MORE FACTS ON GETTING **A BETTER START FOR YOUR FINISH**



A SUPERIOR ALL-PURPOSE NON-ETCHING CLEANER **for ALUMINUM**

HERE is a true advancement in aluminum cleaning! A new, versatile, dependable product that does a far better job—usually in less time and at lower cost!

Pennsalt Cleaner A-27 is a granular material—dry, free-flowing, and dust-free. Its special formulation provides maximum detergency and free rinsing—yet it will not attack or stain the aluminum.

A-27 has an outstanding ability to *thoroughly* remove tough soils, including red and black marking inks, finger marks, cutting oils, and other shop grime. It rinses quickly and completely, *even if it is allowed to dry on the work, and it will not streak or stain.*

Pennsalt Cleaner A-27 is highly recommended for cleaning aluminum sheet stock prior to anodizing, chromatizing, phosphatizing, or other surface treatment. *And note this:* even though A-27 gives vastly superior results, it costs the same or less than other makes of aluminum cleaners!

This great new product is part of a complete aluminum "package" Pennsalt now offers to fabricators. To help you use these materials with maximum efficiency, Pennsalt's Metal Processing Service fieldmen will be happy to apply their experience to your operation.

For information about Cleaner A-27, or any of the products in the Pennsalt aluminum "package", write to: Metal Processing Service, Pennsylvania Salt Manufacturing Company, *East:* 279 Widener Building, Philadelphia 7, Pa. *West:* Woolsey Building, 2168 Shattuck Ave., Berkeley 4, Calif.

Pennsalt Chemicals

The Pennsalt Aluminum "Package"

Pennsalt Cleaner AE-16. A new, non-scaling, non-sludging etchant. Produces exceptionally uniform etch. Rinses free. Can be cleaned from tank with stream of water.

Pennsalt Aldox*. A new, powdered, acid-type desmutter and deoxidizer. Replaces nitric acid, does away with carboys and fumes.

Pennsalt Cleaner # 85. An alkaline cleaner and deoxidizing agent recommended when aluminum is coated with heavy layer of oil.

Pennsalt Cleaner MC-1®. An unusually economical general purpose cleaner and deoxidizer.

Pennsalt Cleaner EC-51®. A non-staining, organic-type emulsion cleaner.

Pennsalt Cleaner EC-54®. An emulsion cleaner which will not boil off, evaporate, or flash at use temperatures.

*Trademark of PSM Co.

finish SUGGESTION BOX

A new concept in hot spray painting

unit has no moving parts—heated material is propelled through heat exchanger by normal fluid pressure on spray line

A NEW hot spray unit, known as the Pressurematic, is said to be ideally suited for applying paint to appliances and other metal products.

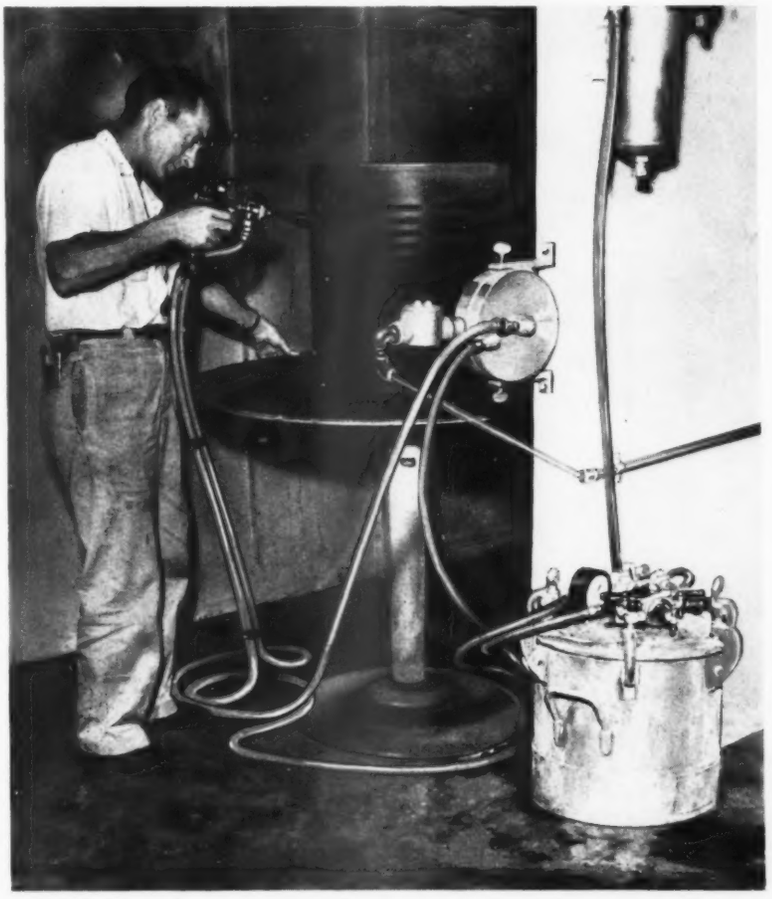
Weighing approximately five pounds, the unit may be rigidly mounted on industrial spray-booth benches or walls for use in conveyorized operations, or it may be slung over the shoulder in a convenient light-weight portable case for use in mobile applications.

The new hot spray unit is said to be easy to operate. It has no moving parts, and the heated material is propelled through the heat exchanger by normal fluid pressure on the spraying line.

Standard pressure pots or pump systems may be filled with material and pressurized in the regular manner. Full heat is reached in three minutes, and is maintained automatically for constant volume flow or intermittent application. A man may conveniently spray up to 10 gallons per hour at an average spray temperature of 165° F.

The unit may be cleaned without removal from the line, with the normal flushback of the material hose; or it may be completely disassembled in less than two minutes for routine maintenance inspection when desired.

Source for further information on this new hot spray unit may be obtained by writing to finish.



STEEL BOILER INDUSTRY OPTIMISTIC ABOUT FUTURE

General optimism over the future of the industry was expressed at the fall meeting of the Steel Boiler Institute, held in Hot Springs, Va. R. A. Lock, Institute manager, reported steel boiler shipments were up 108% for the first nine months of 1952 over the same period in 1951.

OCTOBER VACUUM CLEANER SALES HIGHEST IN TWO YEARS

Factory sales of standard-size household vacuum cleaners in October were highest in two years, totalling 292,474 units, compared to 331,445 in October, 1950, it was announced by C. G. Frantz, secretary-treasurer, Vacuum Cleaner Manufacturers Association.

HOME LAUNDRY EQUIPMENT SALES BREAK RECORDS

Sales of automatic tumbler clothes dryers hit an all-time high in October, according to the American Home Laundry Manufacturers Association. October sales were 83,510 units, up 16.8 per cent over 71,516 units sold in September.

Standard household washers sales of 327,814 units in October were highest since March, 1951, when 368,455 units were sold.

Factory sales of ironers in October were 25,204, up 12.1 per cent from 22,492 sold in September, and 15.4 per cent less than 29,800 in October, 1951.

THE finish spotlight

Some homeowners will find a finished basement room or first or second floor playroom and laundry the most convenient location for their Bendix Duomatic combination washer-dryer. In this house the new laundry appliance does its complete laundering job while the children play nearby. The Duomatic stops operating instantly when the door is opened. It picks up where it left off when the door is closed again.

MEETINGS

HOMEFURNISHINGS MARKET

International Winter Homefurnishings Market, Chicago, January 5-16.

ENAMELERS CLUBS

Midwest Enamelers Club, Chicago, January 10.

Central District Enamelers Club, Cleveland, February 6.

Pacific Coast Enamelers Club, Los Angeles, March 20.

HOUSEWARES EXHIBITION

National Housewares and Home Appliance Manufacturers Exhibition, Chicago, January 15-22.

HEATING, VENTILATING SHOW

International Heating and Ventilating Exposition, Chicago, January 26-30, in conjunction with annual meeting of American Society of Heating and Ventilating Engineers.

PLANT MAINTENANCE SHOW

Plant Maintenance Show and Conference, Public Auditorium, Cleveland, January 19-22.

ELECTRIC SIGN CONVENTION

National Electric Sign Association, annual convention, Dallas, Texas, February 9-11.

ASTM SPRING MEETING

American Society for Testing Materials, spring meeting, Detroit, March 2-6.

STAMPERS TECHNICAL MEETING

Pressed Metal Institute, spring technical symposium, Cleveland, March 18-20.

AMERICAN CERAMIC SOCIETY

American Ceramic Society, 55th annual meeting, New York City, April 26-30.

LPGA CONVENTION

Liquefied Petroleum Gas Association, annual convention and trade show, Chicago, May 3-6.

ADS OUT

THE finish LINE

Note:

With this issue, *finish* reverts to a larger page size which was reduced to conserve paper during the shortage of World War II. Although this size gives our make-up artist additional leeway in the use of large illustrations, you will still be able to file *finish*, as many readers do, in a standard correspondence file.

THE 10TH YEAR OF EDITORIAL SERVICE

— to the Appliance and Metal Products Manufacturing field begins with this issue of **finish**.

In January, 1944, this publication made its bow to serve the metal products manufacturers with technical and practical information on metal finishing. From long experience our editors knew that fabrication, metal preparation and metal finishing were an inseparable triad in the average Appliance and Metal Products plant, so as the publication grew, all of these subjects were encompassed by our editorial program.

From raw metal to finished product

Then, four years ago, in January, 1949, we made a break from the conventional in industrial trade magazines and announced a Complete Editorial Service for the Appliance and Metal Products Manufacturer — "From Raw Metal to Finished Product." Due to the gradual change in editorial scope, as the publication grew in size, subject material was added without sacrificing space devoted to Finishing — so important to *all* metal products manufacturers.

Following an editorial campaign on improved packaging and shipping practices and reduction of in-transit losses for finished metal products, which was started in July of 1948, a new service was added in January '50 — the Safe Transit Section — concerning itself with materials handling, and packaging and shipping problems exclusively.

Thus, **finish** was the first to offer this important segment of American Industry an editorial service on all important aspects of metal products manufacturing from the time the raw metal enters the plant to the safe delivery of the finished product.

Unique distribution plan

Another point at which **finish** has strayed from the conventional is in its circulation policy. Within the Appliance plants, for instance, individual copies go to top management, purchasing, design engineering, works managers and key plant supervision. Our editors, therefore, have the problem of balancing editorial content so that there is material in each issue of importance to each of these groups.

In this connection we are *not* attempting to be "all things to all people." What we are earnestly trying to do is to give the Appliance and Metal Products Manufacturing field a single source for the most important technical and practical plant operating information, plus a news service and an editorial voice. Hundreds of letters from readers indicate that we have achieved at least some small measure of success in this effort.

The "man in the plant" writes *finish*

It has been the belief of our editors that despite many years experience in the industry served, we can not possibly provide for our readers the best in technical and practical information in so-called "staff written" articles. That is why you see such a high percentage of feature editorial material on plant operations written and by-lined by those who know the most about the subject covered — the men in the plant.

To back up our "field" or "on-the-production line" information, we have gradually rounded out an organization of associate editors and technical consultants, each of whom is recognized as an outstanding leader in his respective field. Whether the problem pertains to fabrication, metal preparation, finishing, designing, packaging or quality control, **finish** editors have the benefit of consultation with the top men in industry and education in the planning of editorial material on any of these subjects.

The issue of **finish** in which this editorial appears carries a greater number of pages (both editorial and advertising) than any preceding issue of its nine year growth. But we hope that it shall never be said that the measure of success for our editorial efforts is in the number of pages. We would like it to be measured in the value of our service to readers, which can best be judged by the personal and written comments to our editors.

What's in a name

Whether it is POST, TIME, LIFE, FORTUNE, or FINISH, the title of a magazine means little in itself, but for the regular reader it soon comes to mean a definite type of reader service. It is the purpose of our editors at **finish** to continue to offer the most complete and accurate editorial service for the Appliance and Metal Products Manufacturers. We welcome the comments, suggestions and constructive criticism of readers as one of our most valuable "yardsticks" in measuring our reader service.

Let us hear from you in '53.

Dana Chase

EDITOR AND PUBLISHER

The outlook for the future in the home appliance field

by Donald M. Hobart • VICE PRESIDENT AND DIRECTOR OF RESEARCH, THE CURTIS PUBLISHING COMPANY

BASICALLY, a business Eden would be a continual sellers' market, consumers loaded with income, with constantly expanding new construction, expanding capital goods sales, and low taxes. Such ideal conditions, when they exist at all, never continue. Sooner or later in a competitive economy, as the business climate changes, the men are separated from the boys, the efficient from the inefficient, and the salesmen from the order-takers.

Let us look first at some aspects of the general economic climate for the future insofar as it can be forecast, at some specific phases of the markets for consumer durable goods, and at some of the longer range factors in our economy. Let us then try to appraise some of the choices which *the appliance industry* will face.

Business conditions in 1953

Business conditions in 1953 should be good . . . Defense outlay is expected to run at about $60 billion this year, in contrast to the $50 billion at which it was running in the second quarter of 1952.

On the whole, it is expected that retail sales will be good during the first half of the year, and may well average about two per cent above 1952 retail sales. Business, generally, should stay at about its present level, remaining on the relatively high plateau where it has been since 1951.

Many forecasters look for a continuation of good times. Even those who do not believe there will be continued expansion, and look for something of a downturn from 1952 levels, expect that by the last part of 1953, consumer income may be down by three per cent and total industrial production down about five per cent from the levels of 1952. They expect the level of consumer durable goods production to be down about two per cent. Some estimates suggest a decline of about eight to ten per cent in range and refrigerator production.

The reasons given for this decline in durable goods production are three:

1. Decreasing rate of family formation. This affects construction and the acquiring of new family durables.
2. Large stocks of relatively new durable goods are now held by the consumer, with the inference that many consumers may not purchase soon again.
3. High wage and tax costs leading to higher prices in the durable goods industries.

These three factors will affect the economic climate under which appliance manufacturers will be operating.

Two basic consumer markets

Basic consumer markets lie in new homes and in replacement sales. Home building is expected to decline a little in 1953, but not much . . . It may decline from about 1.1 million to 900,000. That is still a great many new homes, and each of them represents a potential sale — for a range, for water heating, and for some type of home heating — if you go out and get the sale.

Replacements constitute the other important part of the appliance market. In millions of homes in the United States there are millions of old and obsolete ranges, water heaters, and heating units. Millions of homes are without adequate central heating. Much sales opportunity for the space heater lies there. Much of the space-heater potential lies in the rural market. Some forty per cent of

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Donald M. Hobart—

joined The Curtis Publishing Co. in 1923. He followed his first job at Curtis, which was in the commercial research division, with a position on the advertising staff of The Saturday Evening Post. In 1938 he was named manager of the commercial research division, and when in 1943 research was separated from the advertising department and established as an independent department, he was named the research department's first manager. In 1951 he was elected as vice president and director of research.

Hobart is a past president of the American Marketing Association. He is editor of the book "Marketing Research Practice".

space heaters, I understand, are sold now as replacements.

These aspects of the economic picture will control the business climate in which we shall be operating. What we do about that climate, how much we do to overcome changes or excesses of heat and cold depends upon us and upon our marketing efficiency. Also this climate whatever it may be, is operating against a back drop of certain long-range trends which are important and must be considered. For example, population is increasing. We are a country of 156 million people. Family formations are increasing even though the rate is decreasing. There are now over 40 million U. S. families. There are 45 million households. Income is increasing and the distribution of income is broadening; education is more accessible to the many. Savings are increasing. The already high American standard of living is mounting continually higher. All of this means that there will be an opportunity to sell more goods in the future, whatever the temporary hindrances, whatever the economic climate directly ahead of us is to be.

The dynamic vs. static approach to the future economic climate

The great challenge of the future to America and to the appliance industry lies in the treatment of the economic climate which we meet in the future.

We can adopt the dynamic approach to that climate, an approach which leads to success, or we can follow the static way to failure. In an economic sense, "dynamic" and "static" have very definite meanings.

By "static" we mean the attitude and approach of the manufacturer who makes his product, then waits for customers to come and buy. They may come or they may stay away.

By "dynamic" we mean the method of the progressive manufacturer who likewise makes an excellent product, but at the same time advertises and sells it, creating his markets, "manufacturing customers" as he manufactures a product to sell to them.

After many years of economic history, the economists have finally discovered the consumer. They say he is a "complex economic personality" who has the ability of creating economic uncertainty. He does this by suddenly deciding not to buy. This is quite a change in economic thought. For years he was considered merely a pawn mechanically controlled by the economic fates.

An early economic theory of demand said in effect that the lower the price of a commodity, the more the public sought to purchase it. This theory dominated economic thinking until the depression of the 1930's made it clear that falling prices would not stimulate demand when there was a general collapse in consumer incomes. Out of this situation grew the Keynes General Theory which did much to change the emphasis of economic thinking from prices to incomes. Keynes declared that consumers were disposed to increase their consumption as their income increased but not as much as the increase in their income. Some of it they saved.

Out of this theory came the feeling on the part of some economists that consumption was a stable function of income, that consumers were creatures of habit who would always follow the same pattern of spending or saving. If they had money they always spent it and in the same way. But following World War II, instead of purchasing more, even when incomes were high, consumers elected to save in large quantities. Later, with incomes still high, they elected to spend their income and part of their savings.

Consumer holds the key

As a result of these more recent economic events there has been a sharp reversal of economic thinking in many quarters. Consumers have been discovered as the "most uncertain" factors in the economic picture. They change their rates of spending and of saving without any notice. So today the economist is moving closer to the marketing man. To understand the future and to meet the economic climate, we must have a more thorough understanding of the consumer and how to use the dynamic forces of marketing, selling and advertising to *manufacture customers* in quantities sufficient to absorb our production.

Questions for the appliance manufacturer

May I ask three questions about your plans for manufacturing customers?

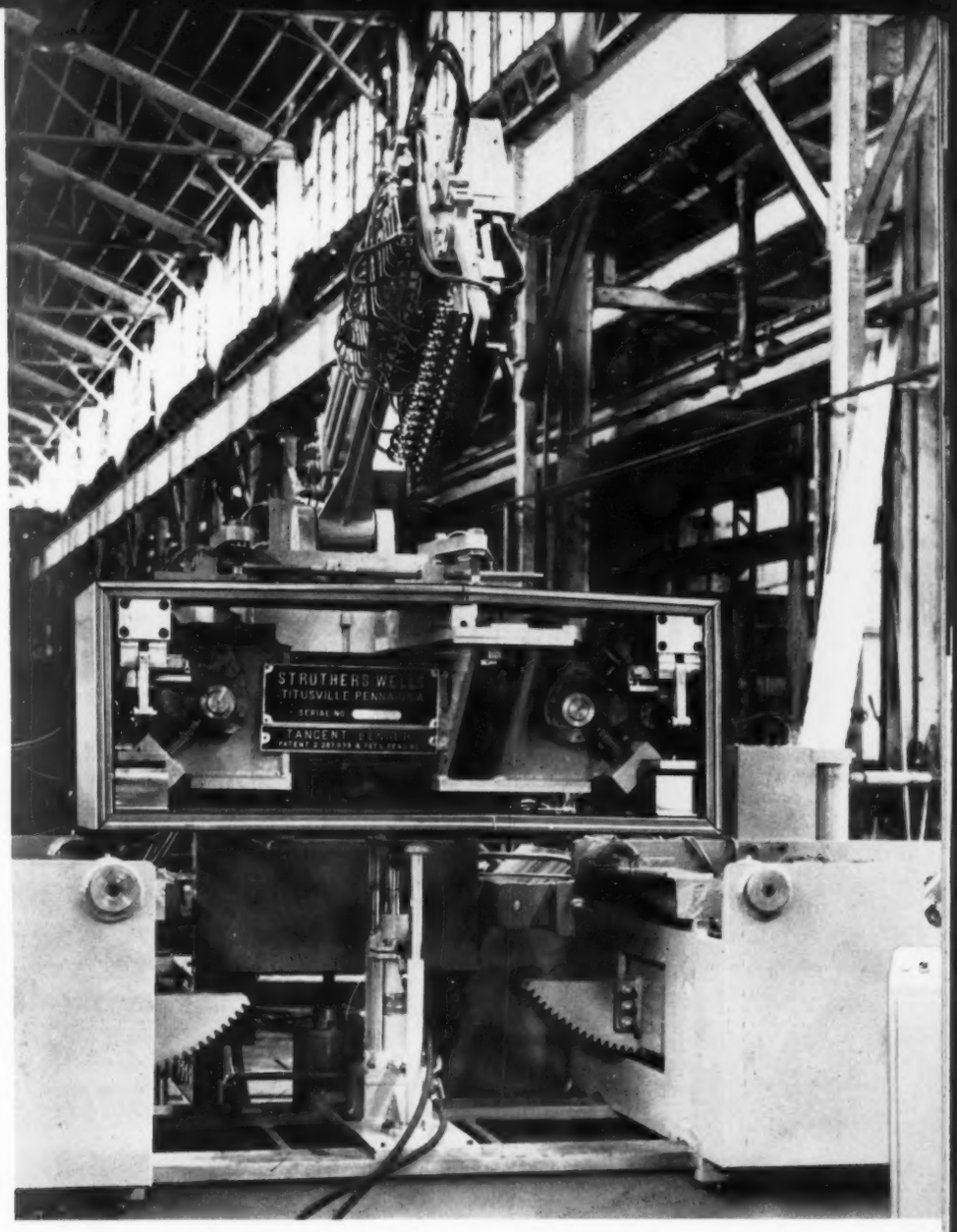
The first question has to do with your product. What are your plans for improvement, for changes in styling and pricing? Are you broadening your line to meet new parts of the market? Are you studying new developments which consumers will want, even though they don't know about them now? What about new colors, the use of new metals, new innovations in construction? Product research, market testing, adventuring into new designs and new products will lead to more sales volume and more profit. . . You must thrill consumers through new products and changes in the style, design, and pricing of old products. *You must manufacture the concept of better living*, and not just better products. . .

The second question I wish to ask is this. What are your plans for studying your markets? Do you know where your best markets are and in what quantities they can be sold? Do you know your needs in the way of salesmen, dealers, and distributors to sell increased volumes of your products to these markets? Have you an adequate marketing research group in your company so that your management can determine where your markets are, how much they can consume, and what sales aims are possible of accomplishment?

The United States market is the largest market for merchandising that exists anywhere in the world. Prospects are scattered in all parts of this huge market. Some families buy much; some buy little or nothing. You must find out where your sales propects live, and in what quantities they can be sold. . .

NOTE

The third question, regarding advertising in the home appliance industry, will be covered in the February issue.



Sequence of Operation

1. Flat cut-to-length cabinet sheets placed in the machine.

2. Bending operation forms both ends of cabinet simultaneously.

3. Machine bends metal back to form the second side.

4. Cabinet is automatically welded together, — operation shown in photo on right.

Combination welding-forming machine for appliance cabinets and liners

by John Maloney • ENGINEER, FEDERAL MACHINE & WELDER COMPANY

THE use of tangent benders and automatic welding machines as separate units is common in production of home appliance cabinets and liners. For some time there has been a demand for a combination forming and welding machine.

Such a unit has now been produced to form and weld a wide range of appliance components. The combination machine consists of a Quadruplex tangent bender with a welding component mounted on a beam which is raised and lowered with each machine sequence to make the forming operation possible.

The material is first placed in the lower dies of the bending machine, and then the operator presses a button to start the fully automatic forming and welding cycle. The bender forms the cabinet to the desired shape, and the last bender operation actuates a limit switch which initiates

the automatic welder cycle. At this point, the welder beam is lowered and automatically latched to the male bender die. The welding guns then engage the cabinet and make the welds. The guns retract, the beam unlatches and raises to dwell position. At the time the welding beam starts to retract, the bending wings of the tangent bender also return to their initial position. The cabinet assembly is then automatically lifted to a position where it will easily clear the male die for unloading.

Production costs may be materially reduced by an installation of this type compared with conventional methods of forming in a bender, and then transferring to a separate weld station. Only one operator is required to perform both operations in this single combination machine.

The combining of the welding and bending machine also saves valuable floor space. Not only is the floor space occupied by the welding machine saved, but also the large area required to store unwelded assemblies. This amounts to considerable plant area, particularly in the manufacture of freezer, washer and dryer cabinets, liners, etc.

Since the weld is made while held to size in the bender, there is no need for over-forming or sizing fixtures. Location problems in the welding machine on these assemblies is eliminated. The welding component is designed with a series welding circuit, the series die being incorporated in the male die of the bender. For heavy gauges, direct welding is used. Units have been designed where the welding guns index, and in this way the spacing on any series circuit can be enlarged for ideal welding conditions.

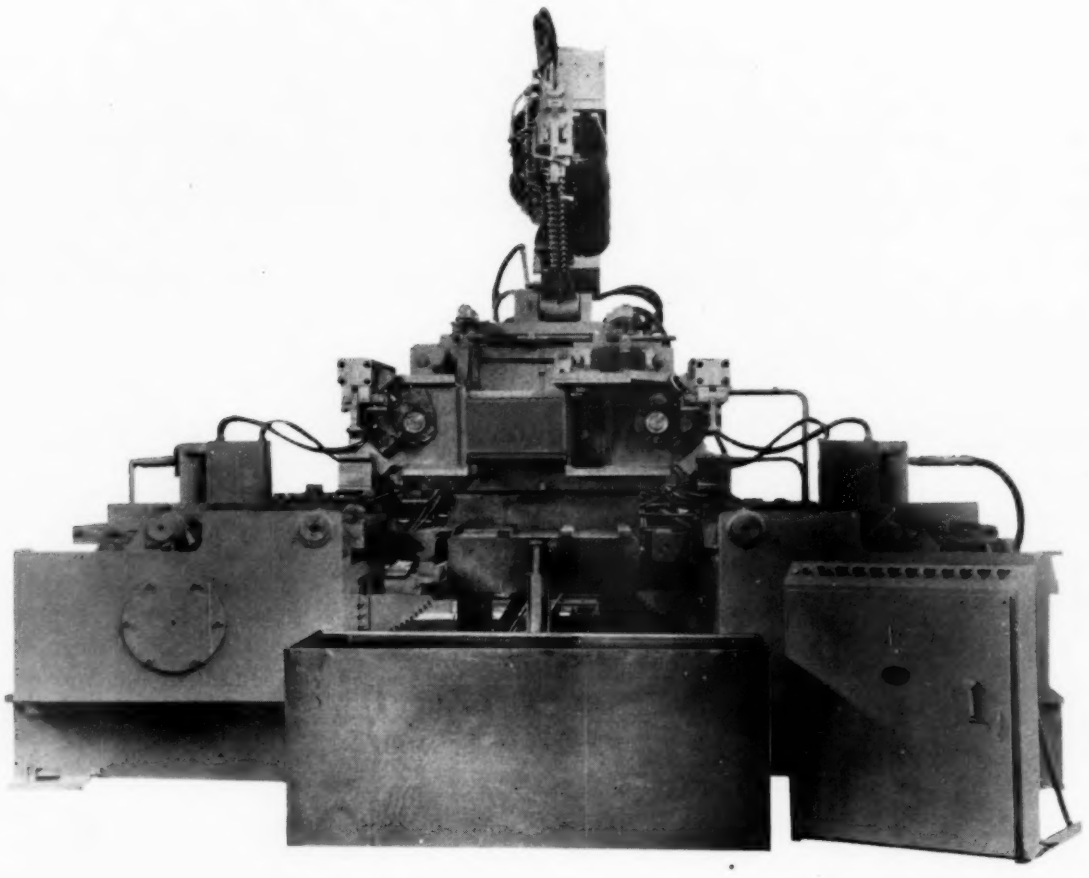
Various combinations available

At the present time, one manufacturer of washing machines is considering the incorporation of a travel head seam welder in combination with a tangent bender. Another combination is being built for welding an aluminum shroud, and provisions are being included for automatic tip dressing of the electrodes while the beam is in the raised position.

The welder unit incorporates package transformers wherever possible. The secondary connections, the mounting connections of the hydraulic guns, the adjustments, etc., are designed for accessibility both for the operator and the maintenance man.

The future prospects of combining both welding and forming machines offer the greatest opportunities. There is a possibility of going far beyond just forming and welding the shroud assembly. In addition to the forming of the shroud and joining it by resistance welding, there is also the possibility of welding other parts to the assembly in this operation.

An overall view of the combination forming-welding machine with a finished cabinet.



Pouring steel from the open hearth into ingot molds.

Properties of steel for enameling

Part II—including description of general properties of base metals

by M. B. Gibbs • QUALITY CONTROL DEPT., AND *F. R. Porter,* RESEARCH AND DEVELOPMENT DEPT., INLAND STEEL COMPANY, EAST CHICAGO, INDIANA

THE first part of this article included chemical analysis, and an outline of physical properties and finishing characteristics for three types of steels used for enameling. In Part II, the following general properties of all base metals will be discussed briefly: cleaning, pickling, nickel pick-up, and physical properties (tensile, yield, etc.)

The ease of cleaning will be found to vary somewhat with the character of sheet surface. It will be generally true that cold-reduced, "skin-rolled-last" sheets clean more readily than hot-rolled "pickled last" sheets. The cleaning characteristics of cold reduced sheets will also vary depending

upon mill processing. The well operated enamel shop will always keep its cleaning system in tip-top shape in order to accommodate shapes fabricated from sheets having varying surfaces as these are characteristic of the grades of sheets made to meet the requirements of the industry. One example will suffice to show what we mean. The *washing machine industry* fabricates thousands of tubs daily—mostly by deep-drawing. Practically all sheets used for this application are not skin-rolled last since this cold-working operation reduces the drawing quality of the sheet. The comparatively un-worked surface of the sheet supplied is somewhat open and porous from which drawing lubricants are removed with more difficulty than from surfaces produced by the relatively small amount of cold working received in a skin rolling operation.

Table III.
Variation of Nickel Deposit with Surface Roughness

Surface Roughness Micro-inches	Nickel — Grams per ft² (Average of 6)
40 - 50	.05
75 - 85	.07

Pickle rates

The rate of pickling will undoubtedly vary appreciably from type to type and grade to grade. Reference to Table II will show the difference that can be expected in pickling cold reduced enameling iron, and cold reduced rimmed, mild steel in 6% sulfuric acid at 170°F. The difference is sufficiently large to warrant segregation and special pickling treatment but we realize this is not practicable in most shops.

Nickel pick-up

There is a noticeable difference in the quantity of nickel deposited on various irons and steels from the same nickel strike bath. The two main deciding factors are thought to be the roughness and chemistry of the metal surfaces. For the same metal, the quantity of nickel deposited increases as the surface roughness increases, at least within limits. This is as might be expected because roughening the surface increases the area and not much thought is required to visualize changing say one square foot of surface to two square feet by suitable roughening — sandblasting or pickle etching. The data in Table III gives some indication of variation of nickel deposit with surface roughness. The data apply to production enameling iron from the same heat. The roughness numbers are profilometer readings.

No two sheet surfaces are exactly alike even for continuous sheets in any lift or package of sheets. They may appear alike to the unaided eye but they vary in surface roughness, continuity and chemistry. Chemically speaking, there is a pronounced difference in rimmed and killed steels and particularly so if the rimmed steel is the low metalloid metal — enameling iron. The chemical composition of the sheet surface has more effect on nickel pick-up than does surface roughness.

Electric couples are formed by areas of dissimilar chemical composition and even by areas having dissimilar grain structures or orientations. Such couplets undoubtedly accelerate the deposition of nickel. We find therefore that killed steels pick-up more nickel per unit time than do rimmed steels, and for sheets of similar surface roughness killed mild steel will pick-up in the magnitude of twice as much nickel as does enameling iron. Mild, rimmed steel will pick-up from twenty-five to fifty per cent more nickel than enameling iron because of its chemistry.

Physical properties

It was our intention to attempt to present in tabular form pertinent data for all grades covering tensile and yield strength, per cent elongation, hardness, and Olsen cup values. The matter was given considerable study and finally abandoned because of the impossibility of arriving at a set of worthwhile data. For example, when we speak of the tensile or ultimate strength of flat rolled steel, in order for the discussion to mean anything, we must specify the type of steel, its processing, the sheet position of the sample (edge or center), and whether the tensile test coupon was cut longitudinally or transverse to the rolling direction. A similar situation exists for any of the physical properties of sheets.

It should also be mentioned that none of the known methods used for measuring physical properties is entirely satisfactory to permit reliable prediction of the performance of the stock in fabrication. The results of these test methods are made use of by mills and industry alike as they are the best available. But experienced men will not unqualifiedly predict from a set of physical data how that particular stock will perform in making a tough draw, for example. Large sums of money have been and are being expended to find a solution to this problem.

Recommendations

Our recommendations to enamelers are:

1. Examine all special steels, processes and enamels very carefully.

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Table II.
Pickling Rates for Enameling Iron and Rimmed Mild Steel

Pickle Time Minutes	Metal Lost — Grams/ft² Cold Reduced Rimmed Mild Steel	Cold Reduced Enameling Iron
5	0.9	0.6
10	1.3	0.8
15	1.9	1.0
20	2.9	1.4
25	4.5	1.8

Chicago Vit RESEARCH BENEFITS THE ENTIRE INDUSTRY

Expanding the market for porcelain enamel has always been a long range objective of Chicago Vit. Result—product developments and coatings that have increased the use of porcelain enamel; new techniques that have simplified the production of porcelain enameled parts; improved methods that have contributed to greater operating efficiency and reduced costs in porcelain enameling plants everywhere.

These are but a few of the many ways the Chicago Vit program of continuous research benefits those companies engaged in porcelain enameling operations.

We hope that you will consider our research and development facilities an adjunct to your shop . . . an easy, sure way of solving enamel problems that may arise from time to time. Contact your Chicago Vit sales or service representative. He will give you on-the-spot advice and help, and will tell you the many ways the Chicago Vit laboratories can be of assistance to you.

for finest frit—Chicago Vit

COLOR DEPARTMENT

NEW END USES

QUALITY DEVELOPMENT

QUALITY TESTING

IMPROVED PROCESSING TECHNIQUES

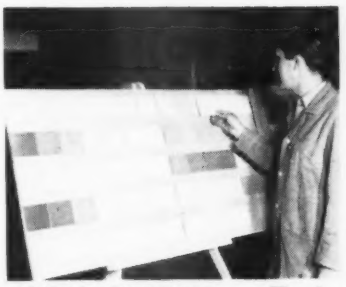
MANUFACTURING CONTROL

TROUBLE SHOOTING

COATING DEVELOPMENT

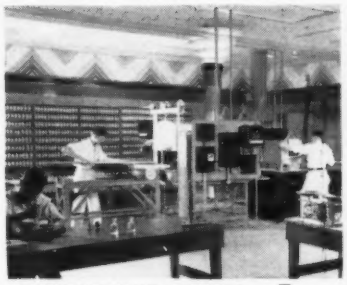
UBLE SHOOTING . . . In preparing ss-sections for studying porcelain ameled specimens under the micro- pe, samples mounted in a low melt- alloy are hand polished on abrasive er prior to final polishing. Sample paration techniques devised by the cago Vit research and development oratory have enabled technicians to ally peer into the enamel coating metal and determine causes of small erfections.

PROVED PROCESSING TECHNIQUES . . . ntinuing studies of metal surface paration are carried on in our pilot kling plant to bring to the industry and better processing methods. In all phases of enamel processing are der constant study in the Chicago laboratories with the obvious goal higher quality finished products.

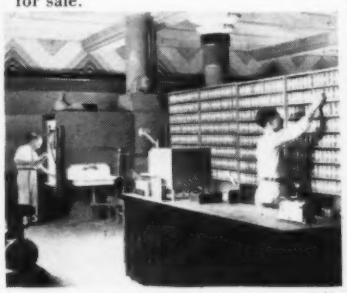


COATING DEVELOPMENT . . . The development of new coatings to meet special service conditions is a never ending laboratory function. One example is the recently announced group of Tint-Taniums . . . pastel colored titanium cover coats. Another is in the high temperature field . . . coatings developed to withstand extreme corrosion from heat. Still another is the chalkboard enamel which requires a special surface condition. There are many more . . . and many more to come.

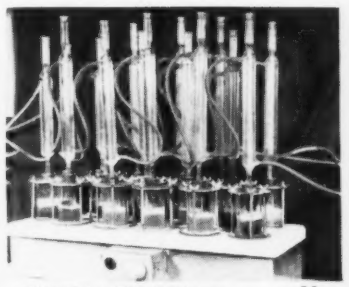
QUALITY TESTING . . . Precise thermal expansion measurements of enamels are made with the Interferometer. Here is a research tool that helps the technician to establish the "fit" of the enamel to the base metal in enamel development work. Another instrument that is of outstanding value in quality testing is the Reflectometer which affords precise evaluations of opacities. And these are but two of many precision instruments that are constantly at work for you.



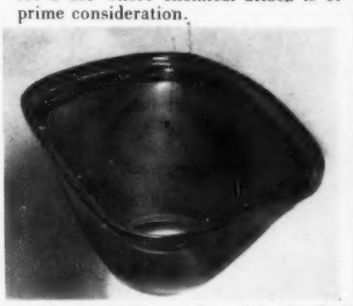
MANUFACTURING CONTROL . . . To produce a uniform finished product there must be uniformity in the raw materials. To assure that uniformity every shipment of raw materials received is tested to make certain that it meets predetermined standards. Then, every smelt run of Chicago Vit frit is laboratory tested for hardness, opacity, acid resistance, etc. Altogether Chicago Vit frits are subjected to more than fifty control steps before they are approved for sale.



COLOR DEPARTMENT . . . A fully equipped department for color matching and color blending is maintained by Chicago Vit as a special customer service. Chicago Vit's Tint-Taniums are the newest development in the field of colored porcelain enamels. They are particularly desirable for the production of bathtubs, sinks, architectural paneling and for other specialized uses where pastel colors are desirable and acid resistance is a necessity. Colors other than pastels may be achieved through the blending of basic oxides.



QUALITY DEVELOPMENT . . . Many specialized tests are performed in order to determine the specific qualities of enamel coatings. In many cases test methods must be created and test equipment must be designed so that the desired information may be obtained. The apparatus shown was especially designed to determine the chemical corrosion resistance of certain coatings in order to select the one most suitable for a use where chemical attack is of prime consideration.



NEW END USES . . . Out of the fund of knowledge that springs from research come new end use products. One of the most significant in the recent past is the porcelain enameled television cone. Here is a splendid example that shows how product development helps to build greater acceptance for porcelain enamel.

Chicago Vit

REOUS ENAMEL PRODUCT CO.

1407-47 South 55th Court • Cicero 50, Illinois

"D-Enameling* has transformed scrap loss into profitable sales."

says
Wendell C. Davis
President
Cribben & Sexton

The profitable experience of Cribben & Sexton Company, manufacturers of Universal gas ranges, typifies that of other appliance manufacturers who have learned how D-Enameling transforms defective enameled parts which were formerly complete loss as scrap into first class production parts that now contribute to the profit picture. In fact, D-Enameling has made it possible for Cribben & Sexton to recover up to 97% of defective parts.

CRIBBEN AND SEXTON COMPANY
UNIVERSAL GAS APPLIANCES
700 N. SACRAMENTO BOULEVARD
PHONE VAN BUREN 6-4600
CHICAGO 12

BRANCHES
BOSTON BUFFALO DALLAS DENVER HOUSTON LOS ANGELES NEWARK N.J. PITTSBURGH SALT LAKE CITY SAN FRANCISCO

New Process D-Enameling Corp.
Highland and New Haven Avenues
Aurora, Illinois

Gentlemen:

In a recent review of company records, I noted the excellent results we have achieved in reduction of scrap loss since starting to use your D-enameling services in 1949.

We have recovered as high as 97% of defective parts which otherwise would have been complete loss as scrap. In fact, we can very well say that D-Enameling has transformed scrap loss into profitable sales.

Your company is rendering a valuable service to the porcelain enamel industry and to the nation by making possible the fullest utilization of steel. Keep up the good work. We're with you 100%.

Very truly yours,
CRIBBEN AND SEXTON COMPANY

wcd/es

Wendell C. Davis
President

ESTABLISHED 1871

D-Enameling can very well mean the difference between profit and loss. It will pay you to investigate the possibilities that D-Enameling offers *you*. In fact, we'll prove its benefits at our expense! All you need do is write, wire or phone us so that we can make arrangements to D-Enamel three or four parts *NO CHARGE*. When you see the results and learn how inexpensive D-Enameling really is . . . how it may help your profit picture, you'll be sold. Just get in touch with us. Do it today . . . now!

*D-ENAMELING IS A PATENTED PROCESS.

D-ENAMELING SAVES DOLLARS...
D-ENAMELING SAVES STEEL

Since October 1949, D-Enameling has saved over 15,000 tons of fabricated steel parts.

New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

Stove men hold management conference

sales and merchandising plans discussed at December meeting of Institute of Cooking and Heating Appliance Manufacturers

STOVE men attending the December meeting of the Institute of Cooking and Heating Appliance Manufacturers at the Netherland Plaza, Cincinnati, participated in roundtable discussions on the subject of sales and merchandising in a buyer's market.

Elect new officers

The Institute also elected a new slate of officers to head ICHAM during 1953, headed by Cecil M. Dunn, new Institute president, and president of RCA Estate Appliance Corp.

Other new officers include: secretary-treasurer, W. Frank Fisher, vice president, The Floyd-Wells Co.; executive vice president, F. Donald Hart, vice president, Temco, Inc.; vice president — memberships, Marc W. Pender, vice president, Magic Chef, Inc.; vice president—meetings, F. A. Kaiser, vice president, Detroit-Michigan Stove Co.; and vice president-publications, F. H. Guthrie, president, Newark Stove Co.

Management forum

The first general session was devoted to a Management Roundtable

CECIL M. DUNN, ICHAM PRESIDENT

presided over by Walter F. Muhlbach, retiring Institute president.

Panel members included Mason Smith, partner, A. T. Kearney & Co.; C. M. Dunn, president, RCA Estate Appliance Corp.; H. J. Berman, executive vice president, A. J. Lindemann & Hoverson Co.; Marc W. Pender, vice president-sales, Magic Chef, Inc.; C. P. Bersing, director of industrial relations, Norge Division of Borg-Warner Corp.; R. N. Smith, secretary-treasurer, Temco, Inc.; and Pauline B. Dunckel, executive secretary of ICHAM.

Mason Smith opened the roundtable forum by listing a number of points to which management should give serious attention. He urged the stove men to compare their product lines with those of other manufacturers of similar lines, pointing out the need for a running account of changes over the years in the industry and in their own companies to see if they are getting their share of business both unit-wise and dollar-wise. He also urged that manufacturers get closer to their customers. In regard to their own companies, Smith urged them to let competent personnel far enough *down* in their organizations make decisions.

Dunn suggested that manufacturers who add effective wholesale and retail salesmanship to national and local advertising have a big advantage in the growing competition for the consumer's dollar.

Berman pointed out the need for

The 1953 board of directors of the Institute of Cooking and Heating Appliance Manufacturers.

finishfoto

Sales and Management Forum Panel — Above: H. L. Clary, Norge; D. S. Sharp, Tappan; A. J. Tener, Perfection; J. L. Moore, Coleman; and J. M. Foxx, Magic Chef.

finishfotos

Below: Frank Hanus, Hughes-Peters; Mort Farr, Farr's; Lloyd Caley, Geedy-Corey; A. A. Greenberg, National Furniture Review; and H. B. Price, Jr., Price's.

the sales department to give more specific information to the manufacturing departments on proposed changes in models so that the two departments could work together more harmoniously.

R. N. Smith emphasized the necessity of companies checking up on their fire insurance to make sure that coverage is adequate enough to keep them in business in the event of large fire losses. This is especially important today due to high rebuilding costs, he added.

Pauline Dunckel reported that increased steel allotment for the first quarter range up to 48% of the base period. She also pointed out that wage and price controls are due to expire April 30, and material control on June 30 — barring unforeseen developments.

General business outlook

At a luncheon session, Donald M. Hobart, vice president and director of research, Curtis Publishing Co., presented a "General Business Forecast for 1953" *(see Page 19)*.

Merchandising forum

The second general session, the Sales and Merchandising Forum, brought out some timely tips on how to keep retail sales at a high level.

The panel consisted of five members representing the stove manufacturing industry, and five representing the distribution industry.

Panel members included: H. L. Clary, Norge Division of Borg-Warner; J. L. Moore, The Coleman Co.; A. J. Tener, Perfection Stove Co.; John M. Foxx, Magic Chef, Inc.; D. S. Sharp, The Tappan Stove Co.; Lloyd Caley, Geedy-Corey, Inc.; Mort Farr, Mort Farr's Inc.; A. A. Greenberg, National Furniture Review, H. B. Price, Jr., Price's, Inc.; and Frank A. Hanus, Hughes-Peters, Inc.

Price, known as one of the most successful dealers in the country, brought out that manufacturers producing only one or two lines of appliances have an excellent chance to survive in competition with larger companies producing complete appliance lines — if they keep in close personal contact with their dealers.

Price also suggested that range manufacturers get more punch into their advertising campaigns, adding that there seems to be less motivated desire on the part of the housewives to replace their old ranges with newer models.

Greenberg brought up the subject of service. He mentioned one survey which indicated that appliance manufacturers were far from the top of the list in providing speedy service on replacement parts.

Farr told the manufacturers that in his traveling about the country he has discovered that dealers are hungry for information on selling, adding that manufacturers should get more aggressive selling material into the hands of the dealers. He also suggested that the appliance producers "plant" news stories in the national magazines—just like the automotive firms do. Magazine editors will give millions of dollars of free publicity on new appliances if the manufacturers will supply them with the information, he emphasized.

Management Forum: Pauline Dunckel, ICHAM; C. M. Dunn, RCA Estate Appliance; R. N. Smith, Temco; Walter Muhlbach, retiring ICHAM president; Mason Smith, A. T. Kearney & Co.; H. J. Berman, Lindemann & Hoverson; Marc Pender, Magic Chef; and C. P. Bersing, Norge.

NEMA holds 26th annual meeting

Hall elected president of National Electrical Manufacturers Association; Poteat elected chairman of NEMA major appliance division

AT the 26th annual meeting of the National Electrical Manufactureres Association, held recently in Atlantic City, L. G. Hall, president, Stackpole Carbon Co., St. Marys, Pa., was elected president to head the Association for 1953. He succeeds J. F. Lincoln, president, The Lincoln Electric Co., Cleveland, Ohio.

Five vice presidents were also elected: Arthur A. Berard, president, Ward Leonard Electric Co., Mt. Vernon, N. Y.; J. L. Busey, vice president, General Electric Co., New York City; J. W. Corey, president, The Reliance Electric & Engineering Co., Cleveland, Ohio; W. A. Elliott, president, Elliott Co., Jeanette, Pa.; and Hoyt P. Steele, executive vice president, Benjamin Electric Mfg. Co., Des Plaines, Ill.

Elected as treasurer was A. F. Metz, president, The Okonite Co., Passaic, N. J.

J. R. Poteat, general manager, range and water heater department, General Electric Co., Louisville, Ky., was elected chairman of the NEMA Major Appliance Division.

R. A. Rich, vice president, major appliance division, Philco Corporation, Philadelphia, was elected vice chairman.

J. R. POTEAT

L. G. HALL

Appliance section officers

New chairmen and vice chairmen of the NEMA Appliance Sections were elected as follows:

Range Section: Chairman, W. E. Saylor, manager, electric range and water heater sales, Nash-Kelvinator Corp., Detroit; vice chairman, Henry Hubbard, vice president and general manager, electric range division, Philco Corporation, Mount Clemens, Mich.

F. H. McCormick, assistant chief engineer, Frigidaire Division, General Motors Corp., Dayton, Ohio, was elected chairman of the General Engineering Committee. Chairman of the Technical Committee is H. W. Schulze, manager of range engineering, Philco Corporation, Philadelphia.

Water Heater Section: Chairman, R. V. Palmquist, sales manager, Clark Division, McGraw Electric Co., Chicago; vice chairman, A. F. Cassidy, manager of water heater sales, Rheem Manufacturing Co., New York City.

C. E. Hughes, manager of water heating engineering, Hotpoint Company, Chicago, was elected chairman of the Technical Committee.

Refrigerator Section: Chairman, W. M. Timmerman, general manager, household refrigerator department, General Electric Co., Louisville, Ky.; vice chairman, F. J. Bommer, vice president, Sanitary Refrigerator Co., Fond du Lac, Wis.

Milton Kalischer, manager of engineering, Westinghouse Electric Corp., Springfield, Mass., was elected chairman of the General Engineering Committee.

Farm & Home Freezer Section: Chairman, F. J. Bommer, vice president, Sanitary Refrigerator Co., Fond du Lac, Wis.; vice chairman, W. S. Hall, assistant general sales manager, Deepfreeze Appliance Division, Motor Products Corp., North Chicago, Ill.

Milton Kalischer, of Westinghouse, was also elected chairman of this Section's General Engineering Committee.

Dehumidifier Section: Chairman, L. W. Smith, manager of appliance product sales, Frigidaire Division, General Motors Corp., Dayton, Ohio; vice chairman, L. H. D. Baker, vice

W. E. SAYLOR

W. M. TIMMERMAN

president of appliance division, Admiral Corporation, Chicago.

R. H. Tull, section manager, refrigeration and appliance specialties engineering, Westinghouse Electric Corp., Springfield, Mass., was elected chairman of the General Engineering Committee.

Housewares Section: Chairman, Stanley G. Fisher, sales manager, electric housewares division, Landers, Frary & Clark, New Britain, Conn.; vice chairman, E. W. Doherty, vice president, American Electrical Heater Co., Detroit.

E. A. Farr, chief engineer, electric housewares division, Arvin Industries, Inc., Columbus, Ind., was elected chairman of the General Engineering Committee.

E. K. Clark, engineering manager, appliance division, Westinghouse Electric Corp., Mansfield, Ohio, was elected chairman of the Technical Committee.

L. W. SMITH

Anticipate 50 million wired homes by 1960

With the number of newly wired homes expected to increase by some 10,800,000 during the next few years, bringing the anticipated total to approximately 50,000,000 by 1960, manufacturers of major electric appliances are looking forward to continued expansion of their markets over the next decade. This view was expressed in the Major Appliance Section meetings of the National Electrical Manufacturers Association.

R. V. PALMQUIST

To realize on present and future market potentials, the Sections were unanimous in their opinion that the industry must continue aggressively to educate consumers, through trade and educational channels, on the advantages of using electric appliances.

New home construction market

In discussing plans for the coming year, it was agreed that new home construction continues to offer a big market, and that this is being reached through promotional advertising directed to the architect and builder. Both present and future markets are being covered through educational work at the home economics and school management levels.

As the assembled NEMA Appliance Sections' members reviewed advertising and promotional efforts being carried on this year, and made

F. J. BOMMER

plans for 1953, it was pointed out that an Association, many times, can do such work particularly at the trade and educational levels, in an advantageous way.

Many campaigns are being continued by the various Major Appliance Sections of the Association. In the Electric Range Section, these promotional efforts include advertising addressed to architects and builders, home economics teachers, and home economists, school boards and school management officials. In addition, plans are being laid for an Electric Cooking Month, May, 1953. During this period, the Electric Range Section will urge electric light and power companies, appliance dealers, electrical leagues, and everyone else concerned to unite in concentrating on

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S. G. FISHER

Lacquer panel, left to right: Dr. F. G. Weed, moderator; J. W. Halley, Inland Steel Co.; R. S. Temple, Dept. of Defense; B. E. Clatworthy, Radio Corp. of America; R. I. Wray, Aluminum Co. of America, at speaker's stand.

ADS OUT

Paint, varnish and lacquer meeting held in Chicago

THE National Paint, Varnish and Lacquer Association held its 64th annual meeting at the Palmer House, Chicago, November 17, 18 and 19. Registration at the convention was the highest in the group's history.

Bright future for industry

In his annual address, Joseph F. Battley, NPVLA president, reported that "from all indications, the industry future is bright. The normal absorption of inventories and the introduction of new products has been healthy. . . . I am sure 1953 will go down in our history as the most heartening, the most profitable year in the industry's history."

Regarding the recent national election results, Battley stated "Individual enterprise has been given the go-ahead signal. Now, the nation will be watching to see how well we carry out our responsibilities. Traditionally, and rightly, the business man has opposed the principle of government regulations. Traditionally, and rightly so, the business man has claimed that free enterprise can still exist and produce in a world of conflict and dismay. Now we must arise to be judged."

Industrial finishes discussed

At one general session, four industry experts appeared on a panel discussion of "New Uses for Lacquer." This session was presided over by Joseph A. Hagar, chairman, Industrial Product Finishes Steering Committee. Dr. F. G. Weed acted as moderator.

Panel members included: J. W. Halley, research and development department, Inland Steel Company; R. I. Wray, aluminum research laboratories, Aluminum Company of America; B. E. Clatworthy, Radio Corporation of America; and R. S. Temple, research and development board, Department of Defense, panel director.

Since the lacquer industry is primarily interested in steel sheets, in contrast to other types of steel, Halley brought up the question of lowered prices for steel sheets, which would be a boon to the finishing industry. "We can say that any relative decrease in the price of steel sheets is going to be small," he stated.

Regarding competition of the finishing industry from corrosion-resisting steels which require no protective coatings, Halley pointed out that "there will be no inexpensive highly corrosion-resistant steels developed within a reasonable length of time. There is one development that we can anticipate, which I believe will probably bring a little more competition with the organic coatings, and this is the metallic coatings." He added, however, that metallic coating developments would not make very much difference to the lacquer industry, because many prod-

to Page 88 →

Joseph F. Battley, reelected president, National Paint, Varnish and Lacquer Assn. holds gift which was presented to him as a token of appreciation for his services during his first five years as head of NPVLA.

finishfoto

New Supplies and Equipment

A-11. Portable power-driven conveyor for handling stampings

New A new compact all-purpose portable "pressparts" power-driven conveyor is available for automatically moving stampings

between progressive operations, or for conveying scrap from press to tote boxes or conveyor belt.

"Pressparts" conveyors are built in standard sizes of 6", 12" and 18" widths, and 6' 11' and 16' lengths, with special sizes to order. Belts are available with or without cleats, and fabricated from rubber, cotton, stitched canvas or wire mesh.

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form, or write to us on your company stationery.

A-13. Luminous decals for night use

New A recently discovered process makes possible a decal that is visible in the dark after exposure to natural or artificial light. One minute exposure to light, each day, causes these decals to glow for a minimum of ten hours. Life expectancy is said to be seven years or more. Several builders of defense equipment have found them ideal for instructions that are essential to life and safety.

A-14. Cold cleaners for metal

New Used at room temperature in power washers, a new "cold cleaner" effectively removes such soil as heavy drawing oils, pigmented drawing compounds, sulphurized cutting oils, rust preventives, etc.

A-12. Loading dock shelters with collapsible steel framework

New A new type mass-produced rugged canvas loading dock shelters extend outward on a collapsible steel framework to shelter truck or freight car loading doors of any size. The shelters collapse flush against the building when not in use. Each of several standard models can also be adapted to fit unusual conditions of use.

Some important advantages in the use of the functionally-engineered loading dock shelters include: protection of men and materials against extremes of weather; increased labor efficiency in loading and unloading trucks and freight cars; dock boards kept dry—speeding the loading operation and promoting safety.

A-15. White ceramic tumbling media

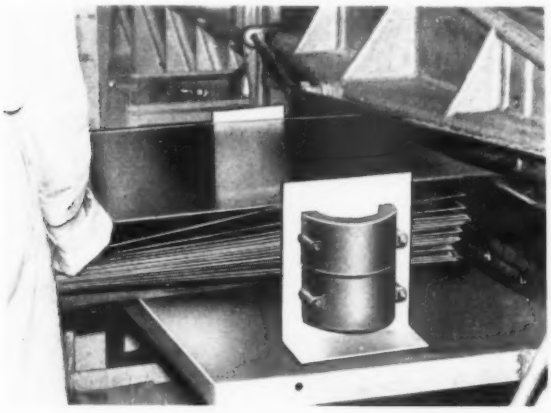
New A new tumbling media, known as "Crown Pebs", has been developed for barrel tumbling, deburring and finishing operations. Made of a tough white ceramic, they are of uniform size and triangular shape. By selecting the proper size, "lodgement" hazards are said to be eliminated.

A-16. Portable vapor degreaser

New This portable electrically-operated, insulated vapor degreaser is thermostatically controlled, and ready for use in less than 20 minutes. It requires only 2½ gallons of solvent. Greasy parts and assemblies come out clean, dry, and film-free in a matter of seconds.

A-17. Magnetic separator automatically separates steel sheets

New No matter what the coating on steel sheets—oil, grease, film, etc.—this new magnetic separator will "float" each sheet making it a simple matter for operators to feed presses, brakes, and shears. It is a completely self-contained unit requiring no outside connections.



Aluminum wear plates are reinforced with stainless steel strips. When used, the unit quickly and automatically causes steel sheets to open up for easy grasping the top sheet. Highly polished or painted sheets separate without scratching.

Industrial literature

101. Facts about high temperature ceramic coatings for metals

New This eight-page report contains important information on the advantages and also some of the deficiencies of high temperature ceramic coatings for metals. The report is profusely illustrated with photos showing the processing of high temperature ceramic coated ware for both defense and civilian products. Operations shown include dipping, firing, inspection, and the finished parts.

102. Hydraulic press catalog for appliance and metal products mfrs.

New This 24-page catalog describes a line of hydraulic presses, including straight-side, post-type, double-action, gap-frame, horn-type, and a wide range of special models. Detailed specifications are given for standard models. Photos included in the catalog show operations in the forming of double-sump sinks, washer cabinets and tubs, heater parts, storage tank heads, automotive and aircraft parts, etc.

103. Embossed name plate catalog contains actual samples

New This free catalog on embossed metal name plates for appliance manufacturers and other users contains actual samples mounted in a file-type folder. This variety of samples shows how embossed plates are being used on appliances, machinery, and merchandise for trade mark identification, operating instructions, serial numbers, power capacities, and general product information such as warranty notice. Manufacturer claims that embossed metal plates have the advantage of light weight, high legibility, long life against damage by corrosion, heat or paint, and considerable savings on initial runs and reorders.

104. Phosphate coatings booklet

New This free booklet shows how to obtain greater sales appeal for painted metal products through better paint finish and longer paint life. The booklet describes a zinc phosphate coating for metal surfaces prior to painting. Applications and equipment recommendations are fully described in the booklet.

105. Aluminum forming manual

New How to draw and form aluminum sheet, plate, tubing, and pipe is detailed in a new 148-page technical manual called "Aluminum Forming". The manual will be sent without charge *only* to those engineers, designers, and other plant personnel requesting it on *company letterhead.*

FINISH
360 N. Michigan Ave.
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No._____ **No.**_____ **No.**_____ **No.**_____

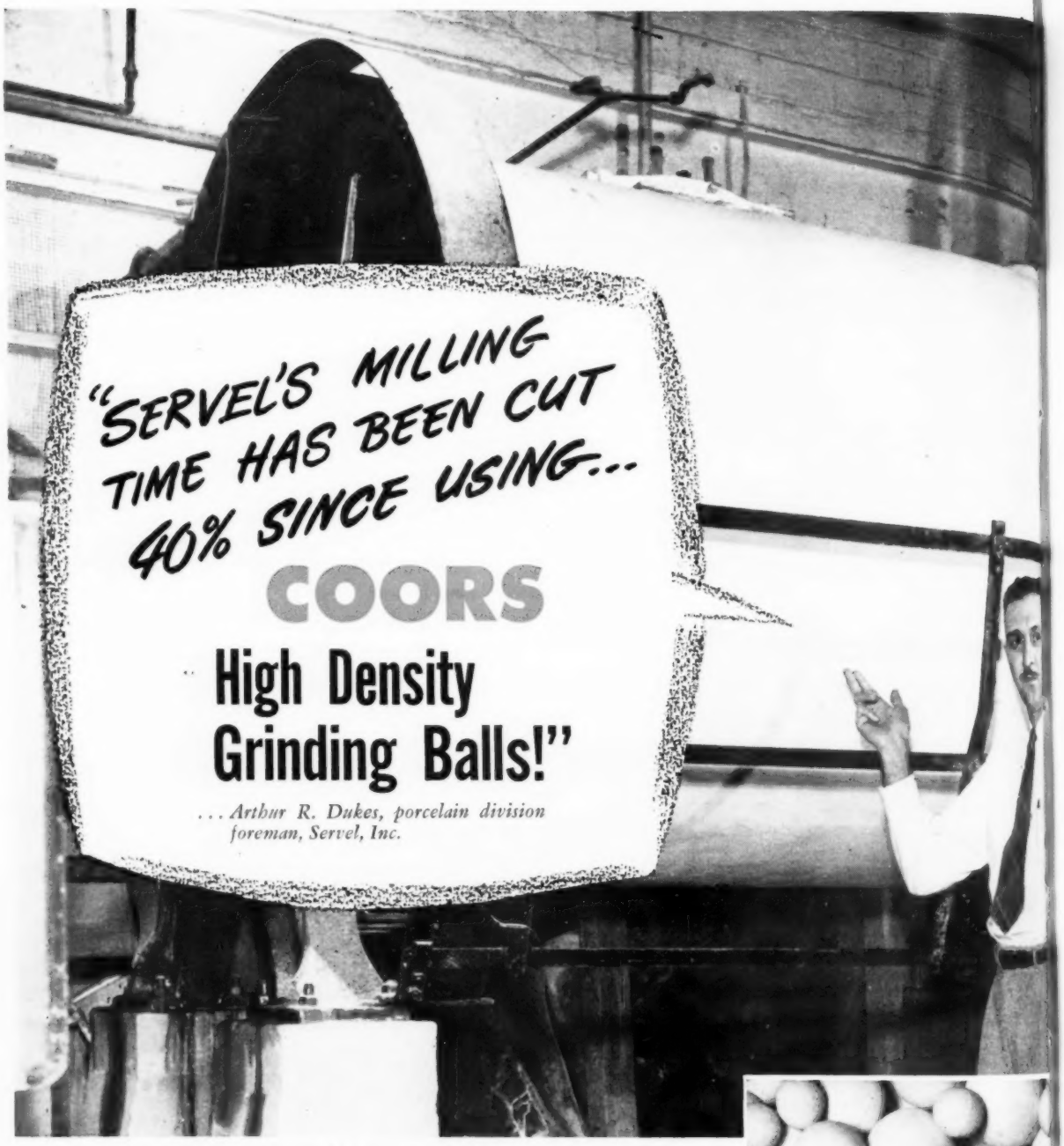
No._____ **No.**_____ **No.**_____ **No.**_____

Name _____ **Title** _____

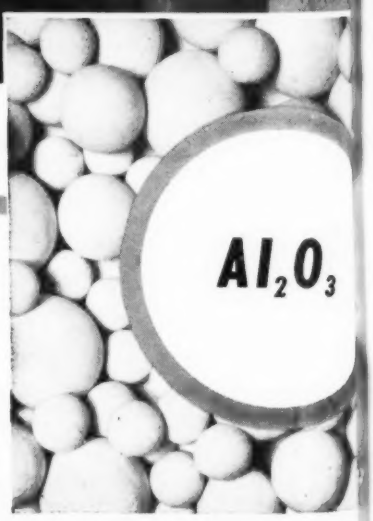
Company _____

Company Address _____

City _____ **Zone** ___ **State** _____



Arthur R. Dukes is pictured above standing beside a mill in the Servel plant where milling time was cut 40% by using COORS Alumina Ceramic Grinding Balls for milling ground coat and finish enamels.



By Test the Best!

- High Density—Faster Grind
- Tough Ceramic—Minimum Wear
- Pure White—No Color Contamination
- Smooth Surfaces—Easy Cleaning
- High Strength—No Chipping or Cracking

THE ADMIRAL STORY

ACKNOWLEDGMENT

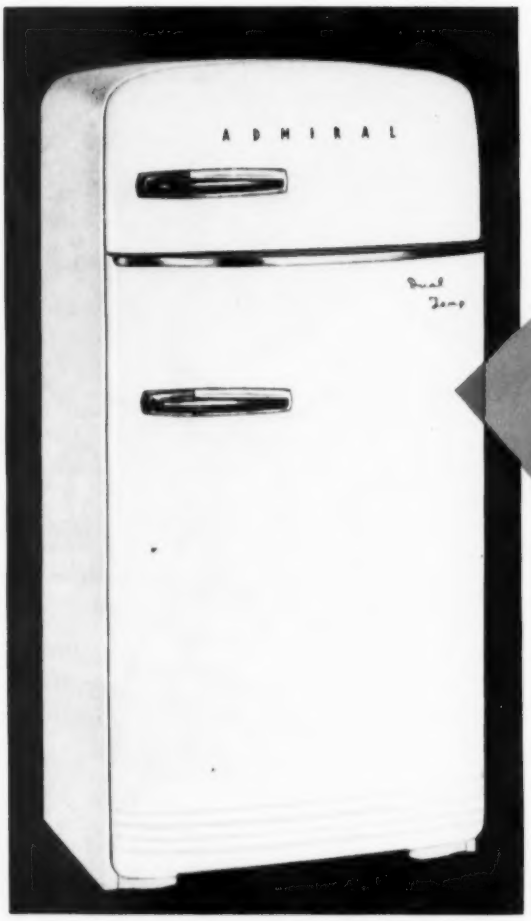
The editors of *finish* desire to give thanks and credit to the Admiral executives in Chicago who assisted by furnishing background information for THE ADMIRAL STORY, and to plant management and key division heads and supervisors at the Midwest Manufacturing Corporation division in Galesburg for their technical assistance in furnishing information and outlining plant operations at the Galesburg plants. Many others in the organization not listed here have our thanks for their willing cooperation.

At Admiral, Chicago

Ross D. Siragusa, president and board chairman
John B. Huarisa, executive vice president
Lee H. D. Baker, vice president-appliances
Seymour Mintz, vice president-advertising

At Midwest, Galesburg

L. H. Moos, general manager
P. G. Hinrichs, production manager
E. T. Morton, director of engineering
G. R. Heidenblut, chief engineer-refrigeration
E. C. Vollmer, chief production engineer
R. G. Johnson, plant engineer
J. H. Baker, chief inspector
G. E. Jones, traffic manager
J. B. Beattie, plant layout engineer
B. L. Godsil, executive assistant
C. A. McBride, tool engineer
J. C. Zahora, purchasing agent
Joe Shrader, plant superintendent
Walter Reisenbiegler, cabinet line fabrication and welding
Owen Hocraffer, general foreman press room
Glen Johnson, organic finishing
Martin Bielma, porcelain enameling
Don Tharpe, assembly and packaging



ADMIRAL DUAL-TEMP REFRIGERATOR with Hardware by Jervis

Learn this new name for an old and reliable manufacturer of fine appliance hardware—

JERVIS CORPORATION

GRANDVILLE — MICHIGAN

formerly

WINTERS and CRAMPTON CORPORATION

Admiral with

HARDWARE

by JERVIS

JC

Since the first Admiral Refrigerator was introduced, Jervis has produced the hardware, including door latches, hinges, name plates and chrome trim.

Jervis Corporation (as Winters and Crampton Corporation) has "grown up" with the mechanical refrigerator industry. Since the days of the early "ice box" with its cast brass latches, the big names in refrigeration have depended on Jervis for hardware that is both good looking and durable.

Serving the Appliance Industry exclusively, Jervis Corporation has developed an organization of Appliance Hardware Specialists and has become the world's largest producer of appliance hardware.

WORLD'S LARGEST PRODUCERS OF APPLIANCE HARDWARE

Admiral

A look into the future

by Ross D. Siragusa • PRESIDENT, ADMIRAL CORPORATION, CHICAGO

Exclusive feature finish

The United States stands on the threshold of an era of industrial expansion and progress. Minor economic adjustments undoubtedly will occur — they are normal — but business should continue to grow and prosper.

Admiral has great faith in the future. The expansion program at Galesburg is strong evidence of our optimism for the home appliance business.

Some executives may be worried about "saturation" of the markets in various fields as a deterrent to sales. But the word "saturation" does not exist in our vocabulary or in our thinking. It is merely a state-of-mind.

For example, it has been said that the market for radios has reached saturation. Today over 95 per cent of all American families own a radio. Over 60 per cent of them own two, three or even more radios.

On the surface, these statistics might indicate that radios could not be sold in quantity. The fact remains that approximately 8 to 10 million are sold each year.

The "saturation-minded" pessimists forget, I believe, that countless radios and appliances become obsolete each year. New families are created annually and, of course, our country has experienced a greater than normal population increase since the end of World War II.

The refrigerator market also is supposed to be at the near-saturation point. However, there are millions of obsolete, small units still in operation. The advent of frozen foods has created a demand for combination refrigerator-freezers. Manufacturers also have sparked sales by using more color and by offering such innovations as improved, speedier methods of defrosting.

We have introduced complete 1953 lines of electric ranges, home freezers, and room air conditioners, marking our expansion into those relatively virgin fields. We also introduced a revolutionary unit which dehumidifies in summer and humidifies in winter.

These new products, as well as Admiral television receivers, refrigerators and radios will be promoted during 1953 by thorough sales-training programs specially prepared for our distributors, and by our usual heavy advertising campaigns in national magazines and newspapers, on television and radio, and in other forms of media.

The expansion program at Midwest Manufacturing Corporation — described in this section — permits increased refrigerator production and enables us to manufacture ranges, upright freezers and refrigerator parts at Galesburg, Ill.

We thank *finish* magazine for doing such a complete story on Admiral and for giving its readers an "inside look" at our appliance manufacturing facilities.

SPEED NUTS® make *forty faster fastenings*

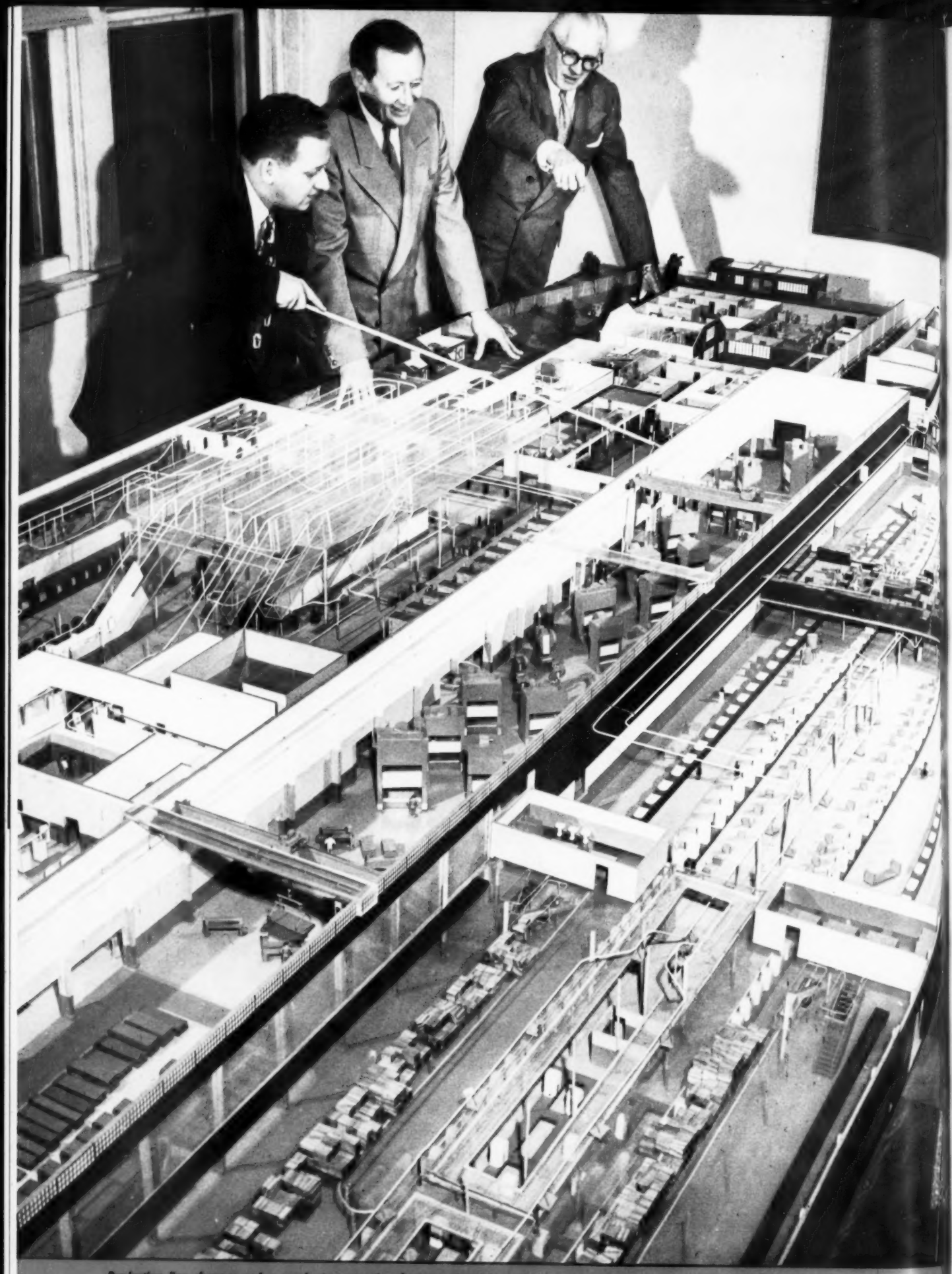
on every *Admiral* Dual-Temp!

Admiral Corporation engineers turn to standard type SPEED NUTS and design many money-saving fastening applications around them. A few of the forty SPEED NUTS used on the 1953 Dual-Temp are shown below. These self-retaining, vibration-proof fasteners make big savings in production time, materials and materials handling . . . and give better engineering performances on applications such as: side-rail attachments on the porcelain enamel liners; drain tubes; door shelf name plates; control switches; evaporator plates; name plate escutcheons, and many others.

When fastening problems develop in the manufacture of your products, or in the design stages of new ones...call the Tinnerman representative in your area. He'll be happy to give you details on our Fastening Analysis, a service that has saved millions of otherwise "lost" production dollars for industry! Or write direct to: TINNERMAN PRODUCTS, INC., Box 6688, Cleveland 1, Ohio.

* * *

In Canada: Dominion Fasteners Ltd., Hamilton, Ontario. *In Great Britain:* Simmonds Aerocessories, Ltd., Treforest, Wales. *In France:* Aerocessoires Simmonds, S.A.—7 rue Henri Barbusse evallois(Seine).



Production line changes and new plant construction first are planned on this scale model. Here, key men at Galesburg are inspecting the model before finalizing expansion plans. Use of the three-dimensional model has saved the company thousands of dollars during its expansion program, for errors were caught and corrected here.

The Admiral story

background information on a $40,000,000 company that started with $3400 and a "garage corner" factory in 1934

IF the books of Horatio Alger had been written during the 1930's or the 1940's, it is entirely possible that it would have been necessary to step up the tempo of these stories if these "dream" books were to keep pace with factual case histories of some of the leaders in the home appliance industry. If memory serves us in connection with these success stories of our early reading days, the hero would inevitably win out over the obstacles placed in his path, and as a result of hard work and insight into human nature, and stubborn determination, make the final chapter one of a glowing success story.

There will be no attempt to compete with Alger in glowing, descriptive paragraphs, but we believe we do have in THE ADMIRAL STORY a case history which can easily compete with the Alger fiction stories. For any of our readers in other countries, it should also serve as a shining example of free enterprise and competition in operation.

Ross D. Siragusa, now president and board chairman of Admiral, takes the lead in our story as it starts in the corner of a borrowed garage in 1934 and covers a manufacturing operation boasting capital totaling $3,400.

The original organization consisted of Ross Siragusa, John Huarisa, Richard Dooley and Kenneth Turner. (The latter two have since retired.)

In the depths of the depression years, Siragusa sold his car and most of his home furnishings to raise his share of the "big" capital investment made by these four men in starting what was originally known as Continental Radio and Television Corporation. After 1936, about 10 per cent of the company's output of radio receivers was sold under the Admiral name, the balance marketed under private labels. In 1942, the company was renamed Admiral Corporation.

As the story starts, the executive headquarters of the company occupied five dollars worth of desk space in the office of a Chicago lawyer. With its garage corner production facilities and keen competition in the radio field, Admiral was rated as a doubtful No. 52 in the industry, trailing 51 other firms in the radio manufacturing field.

During its early days, Admiral had the dream of mass production and mass sales in what was then a luxury market, but had neither the manufacturing facilities nor the capital to develop the dream.

Financial problems

Needing funds desperately, Siragusa went to the banks for money, but received a chilly reception. Next he tried private investors by offering at first a 50 per cent interest for $100,000, and then in desperation a one-third interest in the company for $5,000. A Chicago investment banker to whom this offer was made also turned it down. After continued unsuccessful attempts to raise funds, Siragusa and his associates decided to tighten their belts and go along as best they could.

With the few dollars that remained, a small radio set was developed to be retailed at $9.95, several dollars lower than any competitive offer. Here again the road was rough, for attempts to sell chain stores and mail order houses were always halted with the same answer, "Not interested."

Just as Horatio Alger would have written it, the company was down to its last $200. With this "kitty," Ross Siragusa boarded a bus for Pittsburgh, called unannounced on the head of Busch's jewelry stores, and struck pay dirt. The first purchase was 250 radios, paid for upon receipt of invoice, so that Admiral could keep its suppliers happy and continue production.

The ladder to success

Although the company's growth was unspectacular in the early years, it was steady. . . . From a sales volume in the first year of $240,000 to $2,000,000 in 1936, and to $9,400,000 in 1941.

The company made its real break into the radio field through the price market, starting in 1939 with a model radio-phonograph with record changer selling at $55 when the going price was $100 for similar units. This added important volume, and within two years the company rose from 52nd to 4th place in dollar volume in the radio industry. Another innovation was the addition in 1941 of a miniature three-way portable radio (AC, DC or batteries).

The war years

Admiral could easily be termed a "war baby" insofar as its major success is concerned. As the war clouds were forming for World War II, the company invested over a half million dollars in new plant and equipment for producing electronics equipment. This plant was developed for "potential" war orders without a single dollar of government orders in hand. This meant, however, that the company was ready on December 7 to manufacture electronics equipment, and during the war devoted its facilities to the production of complex communications and navigation apparatus for the Armed forces.

L. H. MOOS, GEN. MGR.-MIDWEST

As Siragusa expresses the difference between Admiral and many other of the so-called "war baby" manufacturers, it is in the fact that "it was one baby that grew up and went to college." This expression refers to the fact that he and his associates devoted much of their spare time to thinking about what the organization might do in the postwar years. Later, this thinking was turned into action.

Plans for the future

Three major problems faced Admiral in its plans for the postwar years:

1. The need for more executive talent and additional products and working capital.
2. The Admiral name, which was comparatively unknown to the public.
3. A weak distribution setup.

Up until this time in their story, the bulk of the executive workload had been borne by five men: John Huarisa, executive vice president; Frank Kazda, vice president-purchasing, Cy Rossate, vice president-production; Lynn Park, treasurer; and George Driscoll, secretary. Huarisa, as chief of operations, was and still is the hub around which all of the production problems revolve.

In 1942, Lee H. D. Baker, a veteran appliance man and stylist, was brought in as an officer on the still-to-be-born appliance line.

Other selections for the backfield included Wallace C. Johnson, vice president-sales; and Seymour Mintz, as director of advertising. The latter joining up in 1944.

The company prides itself on the fact that executives' doors are always open, and meetings or "closed business sessions" are not allowed to interfere with the pressing problems of individual executives. In the offices, informality is the byword, with first names replacing the more formal "Mister."

The approach to major appliances

In anticipation of a huge postwar demand for appliances, it was determined to jump into the field, both for this reason and also as a means of maintaining an even flow of production throughout the year . . with radio and television best for the "indoor" months, and appliances such as refrigerators, ranges, etc., best for the spring and summer months.

The first step in the appliance field was the acquisition in 1944 of the patents, tools, dies and engineering equipment for Stewart-Warner's "Dual-Temp" refrigerator, an early design of a combination home freezer and refrigerator requiring no defrosting. This acquisition was made at a total cost of $125,000 which also included Stewart-Warner's electric range business.

Tackling the "name" problem

Problems No. 2 and 3 (building the "name" and developing a sales organization) were then "tackled."

In 1944, before the company had civilian goods to sell, a trade press campaign was begun, aimed at retailers who were looking forward to cashing in on the pent-up demand for electric products. The company poured $750,000 into trade press advertising which voiced the claim that the best postwar appliances and radios would be those which bore the Admiral trade mark. This campaign, designed to whet an already sharp public appetite, helped to provide the nucleus of the present organization of 90 distributors and 30,000 retail dealers.

A change of pace

In 1946, Admiral was prepared with fresh capital of $1,800,000 which had been obtained from the sale of stock to the public in 1944 and 1945. With this capital and newly-designed products, the company changed its pace to a "sprint" for the years '46 to '49. The products included radios, combination radio-phonographs, and a "start" in the home appliance business, and the organization was feverish with activity in the television field.

Sales in 1946 totaled $36,200,000. The following year, the sales total registered $48,000,000. For 1948, $25,000,000 was the total in television sales alone, and in 1949 net Admiral sales were $112,000,000. Thus, coming from a place among the "unknown," the company had placed itself among the unquestioned leaders in television sales.

When asked to name the principal factors contributing to this spectacular sales rise, Ross Siragusa listed the following:

1. Progressive styling (reduction in the size of TV sets, introduction of larger tubes, use of doors on consoles; and in refrigerators, the use of color and the elimination of dry storage space at the bottom of the unit in favor of refrigeration space to the floor.)
2. Efficiency in planning at the production level.
3. Improved distribution methods.
4. Saturation advertising and promotion of the Admiral name and telling a strong product story.

Appliances get attention

In the four years following the war, the appliance division sustained losses of over $2,000,000, attributed to advertising costs and tool amortization.

In 1950, the company introduced a complete new line of refrigerators and ranges. Refrigerators featured the Dual-Temp, requiring no defrosting in the moist cold compartment, and conventional refrigerator models with full-width freezer chests. The new ranges featured "Flex-O-Heat," surface unit heat control.

With the outbreak of fighting in Korea, and the widespread resultant scare buying of appliances, radio and

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finishfoto

One loaded conveyor in multiple-conveyor "hot room" for final refrigerator running test.

Appliance plant facilities at Galesburg

a condensed outline of some of the plant and equipment facilities in the appliance division

THE production facilities at Galesburg, Ill., on a 52-acre site, consists of a series of buildings comprising approximately 735,000 square feet of floor space. This nearly doubles the previous 385,000 square feet existing as of June, 1952.

The new facilities include the following:

1. Electric range plant, 180 x 700 feet.
2. Finished product warehouse, 150 x 600 feet.
3. Parts warehouse, two stories, 60 x 600 feet.
4. Porcelain plant, 150 x 220 feet.
5. Four-bay truck dock, enlarged office space, and lengthened refrigerator lines in the main plant.

The range plant

The interior of this new brick building is painted "color dynamically" with two shades of green on the walls, and the ceiling painted white to provide greater light reflection throughout the building.

Railroad sidings large enough to accommodate three cars each were laid inside both ends of the building, with loading platforms and bays for four trucks also located at each end.

Production operations in the range plant will include range parts finishing and assembly, plus some re-

frigerator parts production. Range fabrication will be in the press department in the main plant. Finishing facilities include bonderizing, painting (with bake ovens on the roof) and galvanizing operations.

A 1050-foot covered interplant conveyor system connects the main plant with the range plant. In use, the overhead conveyor carries stamped and porcelain parts and empty refrigeration unit racks from the main assembly building to the range building, and returns crated ranges and refrigerator evaporator units in specially-designed carriers.

Finished product warehouse

The new brick warehouse was constructed over a corrugated metal structure which was later dismantled within the new building, and is being erected on another site. The new warehouse permits the stacking of refrigerators four high and ranges five high, and the loading of 13 freight cars under cover.

Expanded porcelain facilities

A new porcelain plant, extending out from the present porcelain department located in the main building is scheduled for completion by spring. It will double the present porcelain capacity.

Almost 100% conveyorized

The Admiral plant is practically 100% conveyorized, containing approximately 9,000 feet of slat or belt conveyor, and approximately 20,000 feet of overhead monorail conveyor — or more than 5½ miles of conveyors of all types.

In addition to the required office space, there is also a design engineering and research laboratory, plant layout and planning department, and complete inspection and test facilities.

Because of the rapid growth of the Galesburg facilities, and the continuing expansion program, the layout and planning department has been the focal hub of the new enterprise.

Three-dimensional plant model

An important feature of this department is a three-dimensional model of the entire plant which plant executives declare has saved thousands of dollars due to the fact that it has been possible to catch and correct errors prior to actual construction, and to prevent costly changes after construction was begun.

Problems are worked out first on the plant model, and then transferred to blueprint form before actual construction begins. The planning department also works on plant additions and improvements, reduction of production costs, and plant equipment changes required for new model production.

Equipment for wiping corners on liners following welding operation.

finishfoto

A trip through the Admiral refrigerator plant

including an illustrated description of fabrication, metal preparation, metal finishing, assembly, packaging and shipping, and materials handling

by Dana Chase • EDITOR, *and Matt Heuertz* • ASSOCIATE EDITOR

Exclusive feature finish

As an example of one of Admiral Corporation's major appliance manufacturing operations, we have selected the refrigerator as a product for following plant layout and sequence of operations. Admiral refrigerators are fabricated, finished, insulated, assembled and packaged in the main plant at Galesburg.

The company purchases plastic parts, screws, bolts, insulation, crates and other components. Purchased parts flow through the receiving inspection department, and upon acceptance are placed on conveyor belts which carry them to a mezzanine storage area located directly over the main assembly lines. The parts and components are then fed to the assembly lines in baskets on an overhead conveyor, or by chutes which deliver them to the point of use. Exception, of course, is crating materials which go directly to the packaging and shipping department.

FABRICATION

THE heart of the refrigerator plant is a room 600 feet long by 50 feet wide, which houses a long line of presses and shears ranging from the 30-ton punch presses to a 750-ton unit for drawing door panels. In all, this room houses 40 presses, 7 shears, a roller leveler and 6 press brakes. At one end of this room is a steel storage area with easy access from either rail cars or trucks. The room is serviced by two large overhead traveling bridge cranes. (There are also 25 presses, shears and brakes in other sections of the plant for "on-line" work.) In the long press room, all equipment is set up in units of from two to six presses for specific progressive operations. These include everything from a single operation in a press, such as the first door draw, to six progressive operations in one press, such as are accomplished in the fabrication of liner top and bottom stampings.

To follow a *refrigerator door* through fabrication, we find the first operation on a 750-ton drawing press (from a flat sheet). The drawn shape is transferred to a second press for trim and pierce, and then on to a third press for flanging. From this point the stamping is transferred to a conveyor chain and carried to raw metal assembly.

On the raw metal assembly line, doors are pierced for hardware, nameplate and trim, and then placed in a jig where corner gussets, lock mechanism, brackets and cross bracing are spot welded in position with portable gun welders.

A belt conveyor carries the assembled raw metal doors through metal finishing operations, and they are then transferred to an overhead conveyor serving the paint department.

Liner bodies are first embossed to afford strength, and to provide clearance spacing for the evaporator unit. Second, the sheets are blanked and pierced for shelf studs, mounting brackets, etc. In a third press, welding and front flanges are formed up. Liner parts are then transferred on skids by truck to the welding area.

In the welding department, a two-wheel welder forms the body down to shape and seam welds it.

The shape then enters a six-wheel seam welder to weld the top, bottom, and body into a single unit. The liner is then placed in a special machine for wiping the corners following welding. Next it goes to a press brake for finish forming the front flange.

The next step is in a squaring fixture, where corner gussets and reinforcing brackets are spot welded to the liner flange.

From this point, finished raw steel liners are carried by belt conveyor to the pickling department.

The cabinet line

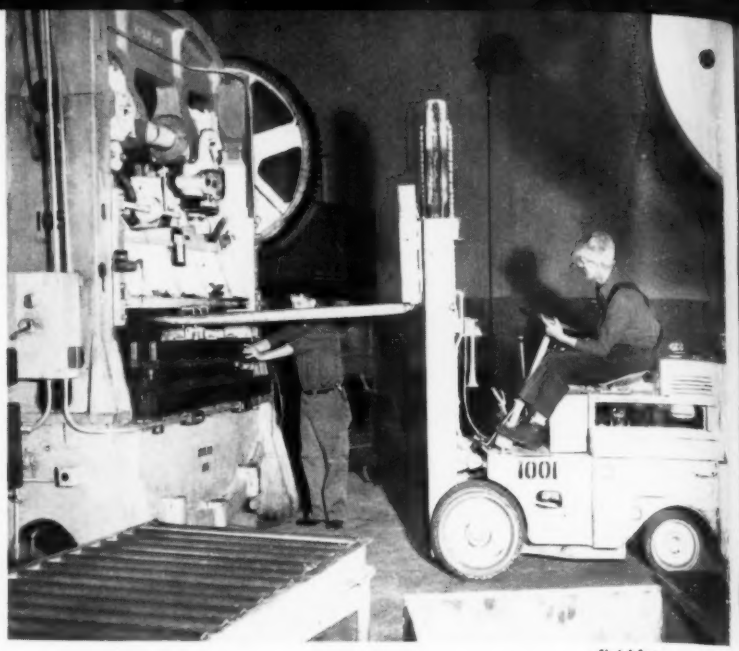
One of the most interesting sections of the fabrication department is the production line for forming and welding the cabinet or outer shell of the refrigerator. Cabinet wrapper sheets are delivered to the various operations on gravity roller conveyors. The conveyors are of proper height for loading presses and roll-

to Page A-23 →

fabrication department photos →

finishfoto

Equipment for roller-levelling steel sheets prior to fabrication. Overhead sheets are then ready for transfer to progressive fabrication.



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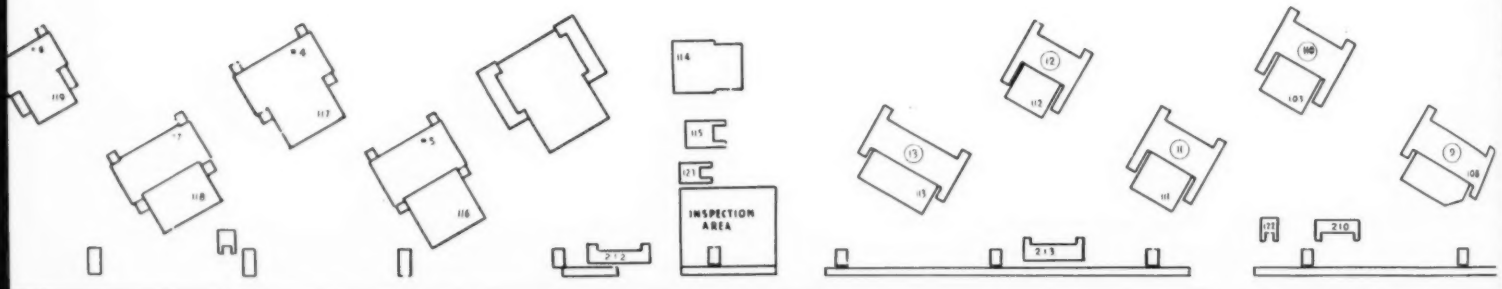
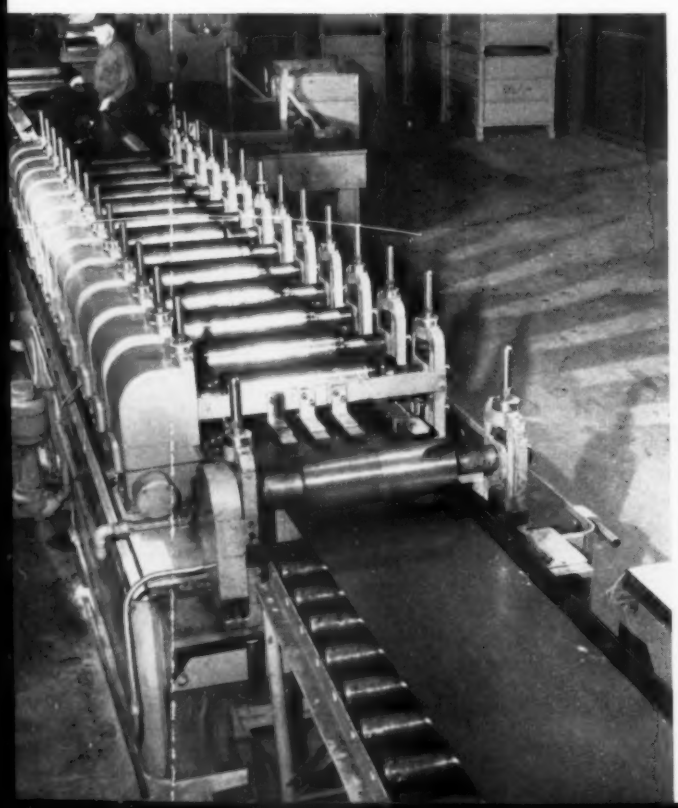
Materials handling method showing use of fork lift truck for loading dies into presses.



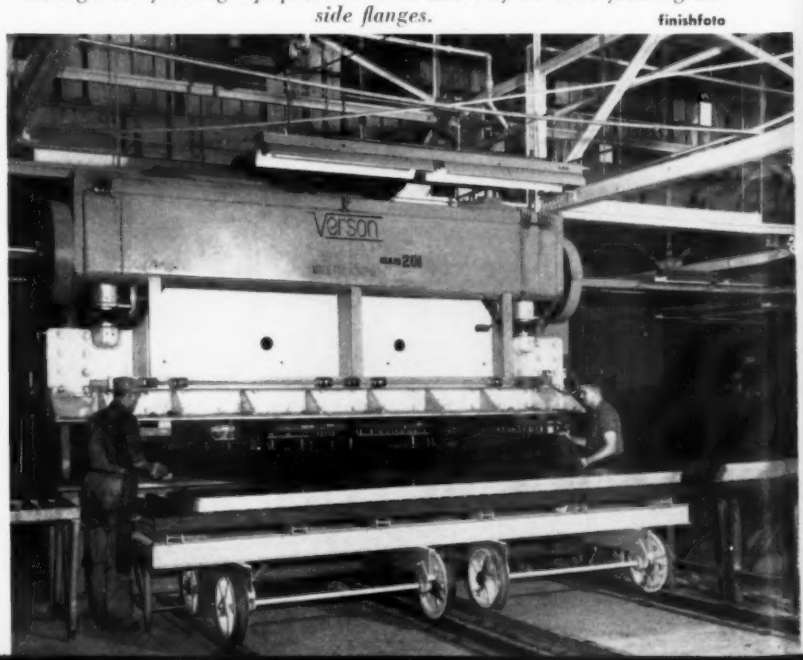
Section of the 600-foot fabrication room showing relative position of presses and shears, and other fabrication



Below: On the exterior "wrapper" line, this 16-foot press brake is used for piercing, notching, and shearing to length the wrapper sheets for cabinet bodies.

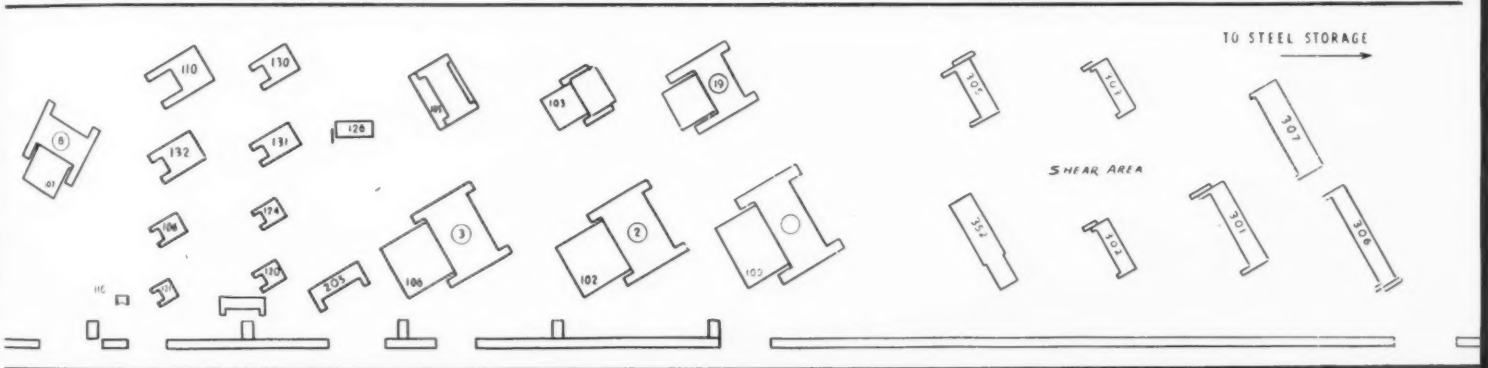
Left: Following press brake operation, the "wrapper" sheet passes through roll-forming equipment with a series of 13 rolls forming the side flanges.

finishfoto



Three-stage stamping setup produces lower backs for refrigerators. Operation combines small forming press at left with dual setup in large press.

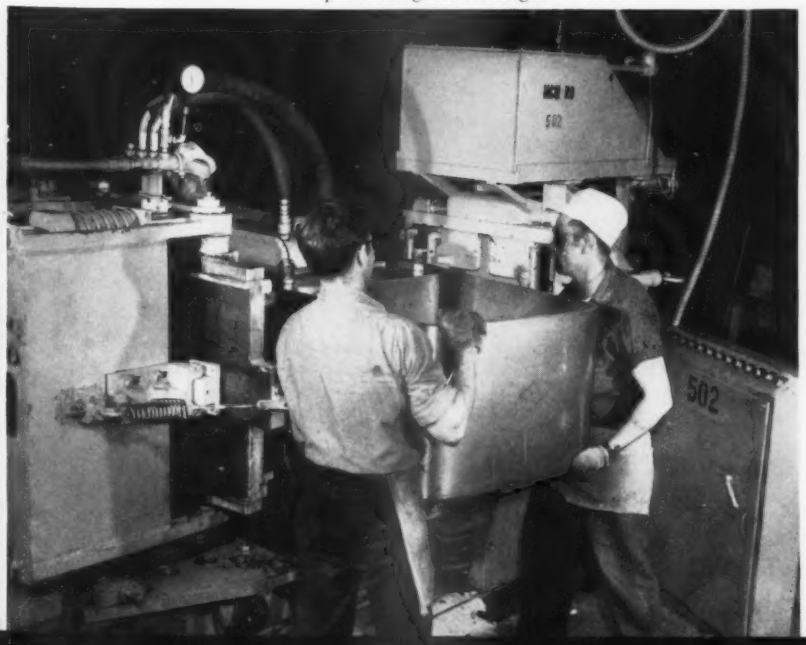
A liner shape enters a 6-wheel seam welder to weld top, bottom and body into a single unit. At right is the 2-wheel welder.



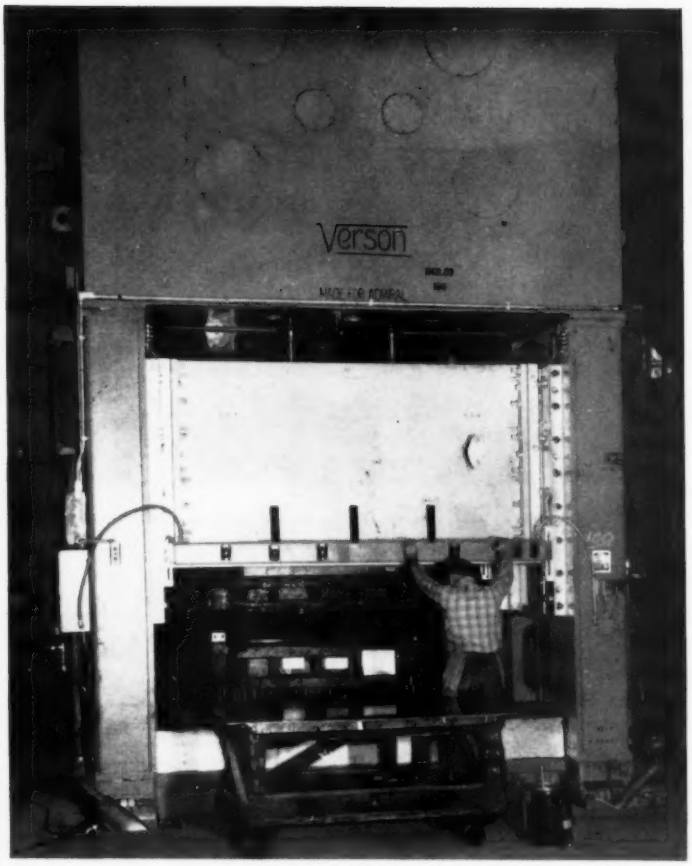
equipment used for doors, liners, and other components. Body line is in another section of plant.

Below: From the roll-forming machine, sheets continue on roller conveyor to this tangent bender station. Here they are formed into the U-shape of cabinet.

Right: After two back sections and various brackets are welded automatically to the cabinet, this fixture is used for squaring the body for portable gun welding.



MADE FOR ADMIRAL



THIS Verson FULL ECCENTRIC PRESS
produces refrigerator doors

AT Admiral Corporation's Midwest Manufacturing Division in Galesburg, Illinois, all heavy press and press brake equipment is of Verson manufacture, especially for Admiral. The press illustrated above is typical—a 600-ton Verson full eccentric with two points of power application to produce large pieces such as the refrigerator door shown. Other full eccentrics in the Verson line-up at Admiral range from 200 tons to 600 tons capacity.

For all types of forming of large or small pieces for ranges, refrigerators, freezers, space heaters or what have you, Verson full eccentrics provide the five essentials of press design—strength, rigidity, endurance, accuracy and power. For the user of our presses, it means better stampings at lower overall cost.

Whatever you produce that requires stampings—it will pay you to find out what we can offer you. For recommendations, send an outline of your requirements.

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You get better finishes – the coat is "wetter," more uniform. Higher standards of quality are maintained over longer periods. You have fewer rejects, less reworking and lower unit costs. There's less operator fatigue – slower and fewer gun strokes are needed.

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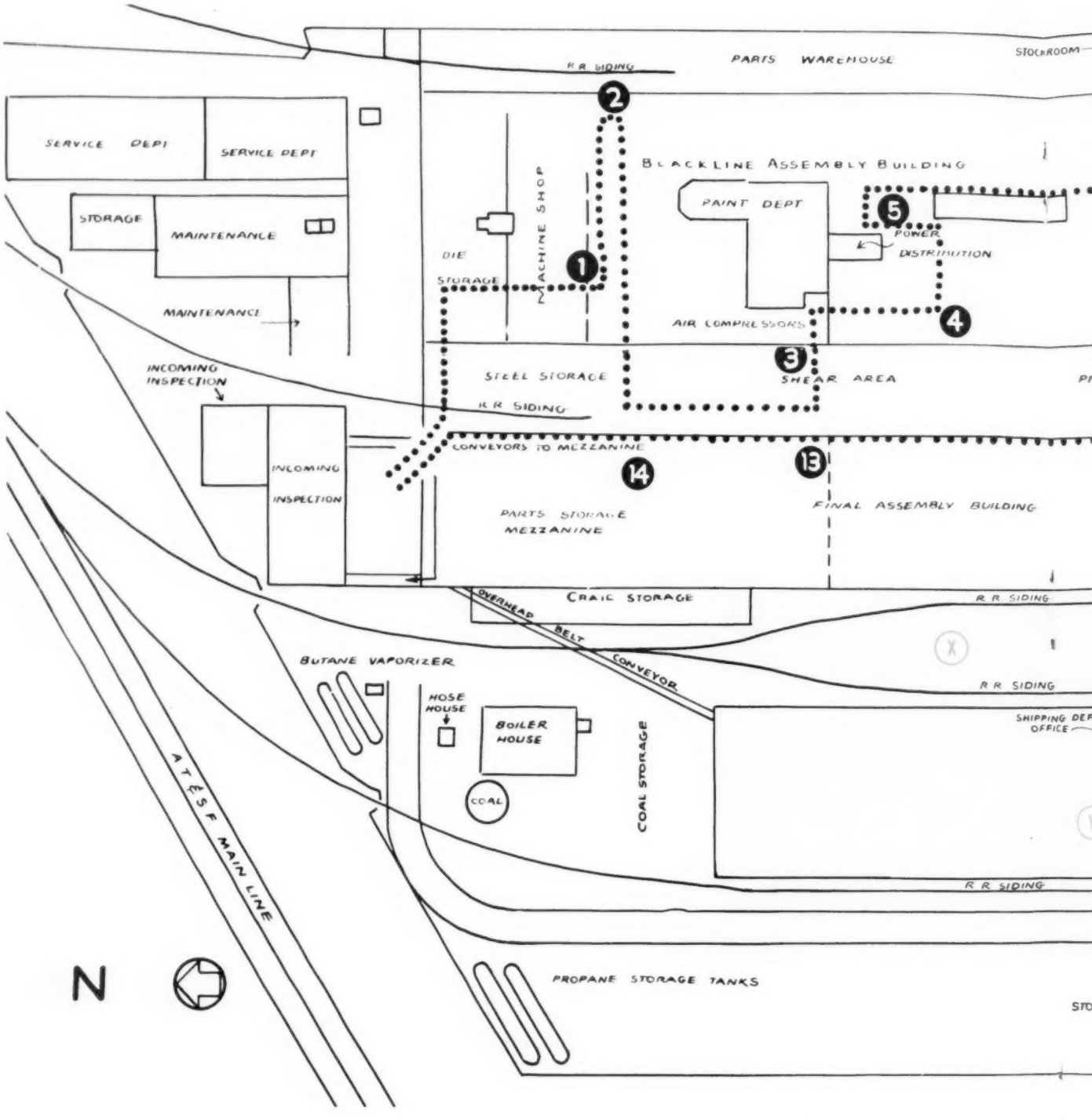
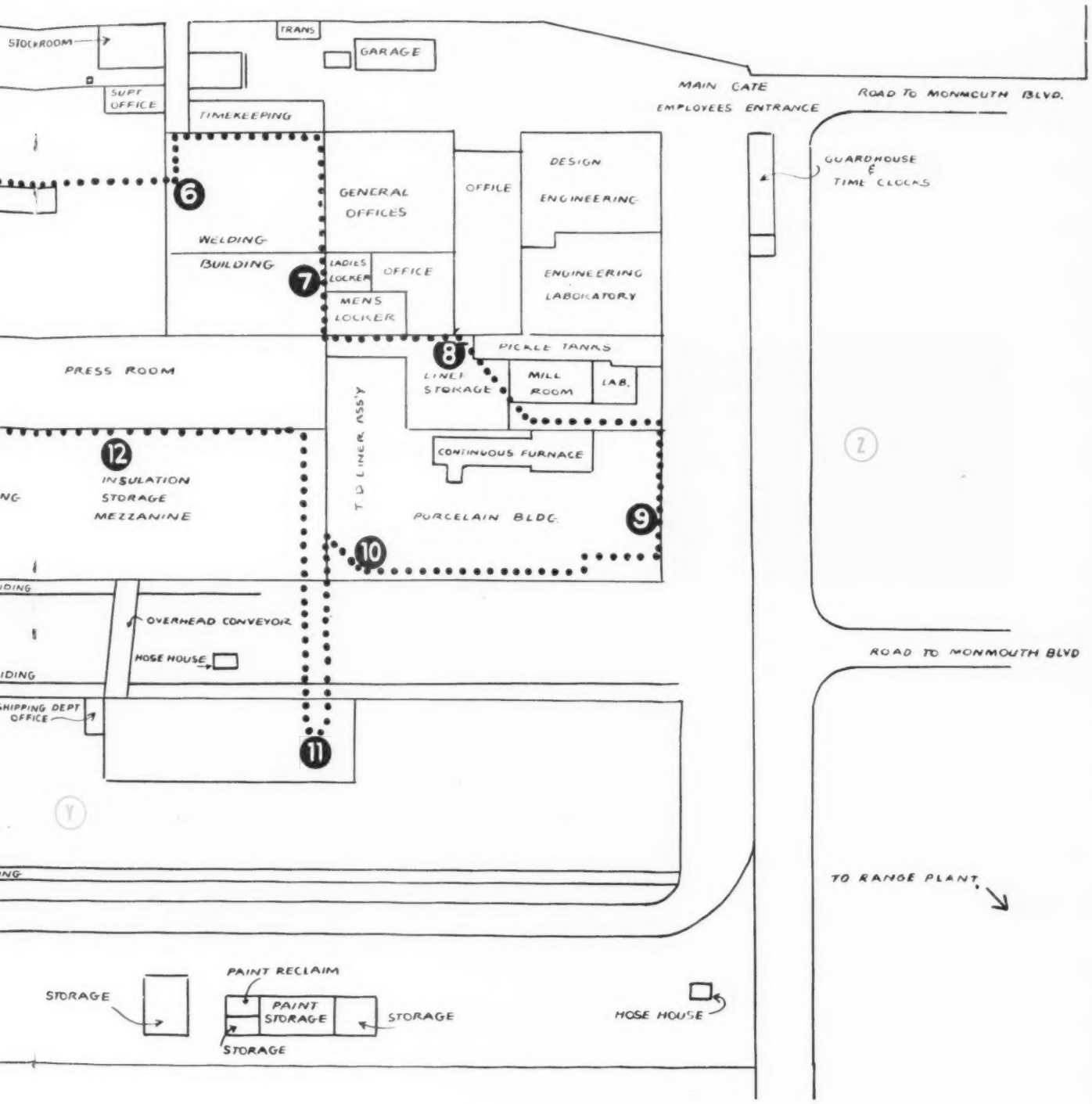


Drawing in black shows Midwest plant before recent expansion was completed. Color sections show part of added plant facilities, with X showing location of new parts storage warehouse, Y the new finished product warehouse, and Z the new porcelain plant. Range plant comprising 126,000 sq. ft. is outside the area of this drawing.

Dotted lines represent a trip through the Admiral Plant — not work flow.



1. Steel storage to cabinet line
2. Tangent bender location
3. The press room, including steel storage
4. Refrigerator door assembly (black metal)
5. Phosphatizing machine
6. Welding department
7. Metal finishing
8. Liner storage
9. Porcelain department
10. Dual-Temp liner assembly
11. Warehouse
12. Final assembly lines
13. On-line inspection
14. Packaging and crating

DU PONT

DULUX enamel

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DULUX is easy to clean—A little warm water and mild soap quickly and thoroughly chase dirt. The exceptionally smooth, hard DULUX Enamel finish offers little opportunity for dirt to "anchor" and collect.

DULUX resists chipping—Amazing flexibility is a characteristic of DULUX Enamel. Metal protected with this Du Pont finish may be bent or dented—and the DULUX finish won't crack or flake off.

DULUX resists grease—Cooking fats spoil the initial beauty of ordinary enamels. DULUX-finished panels can be soaked in a mixture of oleic acid and cotton-seed oil for 3 or 4 days—and the finish doesn't soften.

DULUX resists moisture—The baked DULUX Enamel film effectively resists the action of moisture. Were it not for this important DULUX barrier, kitchen steam and moisture would soon corrode and rust the metal.

Extra-quality DULUX Finish on <u>every</u> ADMIRAL

. . typical of ADMIRAL quality throughout.

DU PONT

Better Things for Better Living
. . . through Chemistry

DULUX enamel

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America's leading home appliance finish

CHEMICALLY ENGINEERED TO DO THE JOB BETTER

This is a DU PONT "DULUX" ENAMEL FINISH ON EXTERIOR

→ *from Page A-15*

ing equipment. Two sets of parallel conveyors serve the first operations, so that two different sizes of cabinets can be run simultaneously.

The first operation for a cabinet wrapper sheet is shearing to dimension for width in a 16-foot shear. In an adjoining 16-foot long press brake, the sheet is then pierced, notched, and stamped to size for length.

At this point, sections of the twin roller conveyors travel on a track placed at right angles to the roller conveyor travel. This provides for shifting the sheets to either one of two conveyors serving roll forming machines.

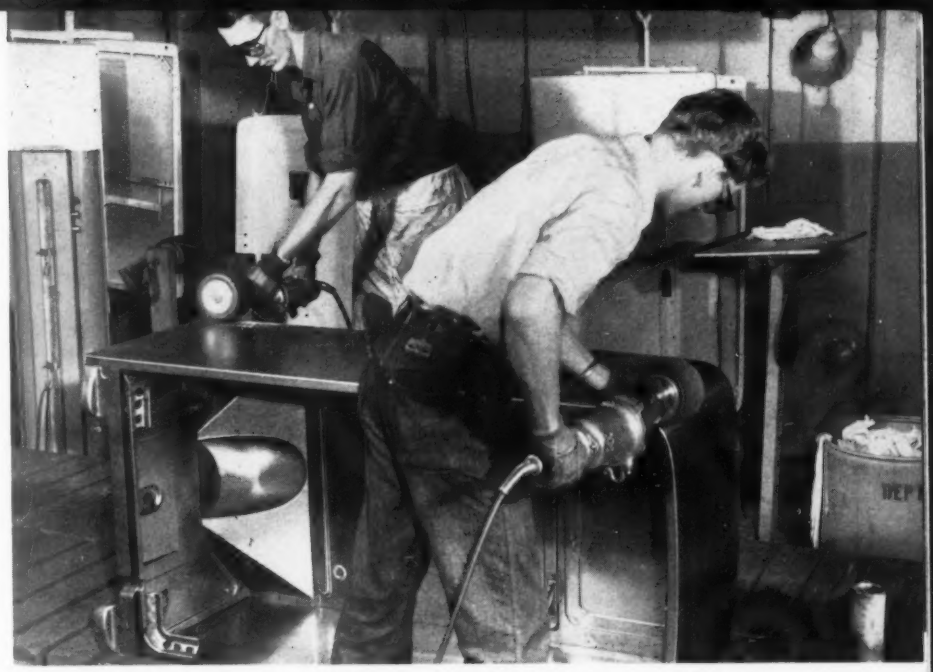
The sheet then travels through a roll forming machine, with a series of 13 rolls forming a double flange on one side and a single flange on the other.

From the roll forming machine, the formed sheets continue on roller conveyors to the nearby tangent bender station. Here they are formed into the U-shape, and are transferred to the next station consisting of an automatic welder, where the two back sections and various brackets and small components are welded into place. This resistance spot welder has two sequences with four separate firings on each sequence.

From the welder, the shape is placed on a continuous slat-type floor conveyor, where a fixture is used for squaring the body for its approach to a line of portable gun welders, with two operators per fixture.

After the jig is removed, three operators reinforce hinge section. Additional welding operations on this slat-type conveyor involve the use of seven additional gun welders. This conveyor is marked in 10-foot lengths, with one cabinet figured for each mark. Checking the speed of this conveyor gives a production count for any set time. Fifteen to twenty-three men can logically be used on this conveyor line, with twenty-three men giving a production of 75 cabinet shells per hour.

This same slat conveyor travels through metal finishing, with the following sequence of operations:



One of five stations on cabinet metal-finishing line between fabrication and paint department. Cabinets are transferred directly to overhead paint conveyor.

1. Smooth top front radius (laid down).
2. Remove any dings, pits, or rust. Turn over and operate both sides with sanders.
3. Buff over sanded sections. Stand cabinet up.
4. Sand top of cabinet. (Operators on raised platforms.)
5. Final finish (air vibrators used).

At this point, the cabinets get final inspection in raw metal, and are then transferred to the paint chain. A nearby repair station handles any rejects.

All sub-assemblies are fabricated separately, and fed to their proper place on the production lines, with most of the sub-lines terminating at the main line.

FINISHING

PAINTING

ALL operations in the organic finishing departments are served by a single conveyor 4,096 feet long, which feeds the black shapes from the fabrication lines through the washing and phosphatizing machine, and all stages of the finishing oper-

Section of paint mixing room showing some of equipment used for preparing the synthetic enamel. Spray line is served through closed distribution system.

finishfotos

Cabinets entering and leaving U-type phosphatizing machine. Unit has following stages: alkali cleaners, two clear hot water rinses, phosphatizing, cold rinse, and chromic acid.

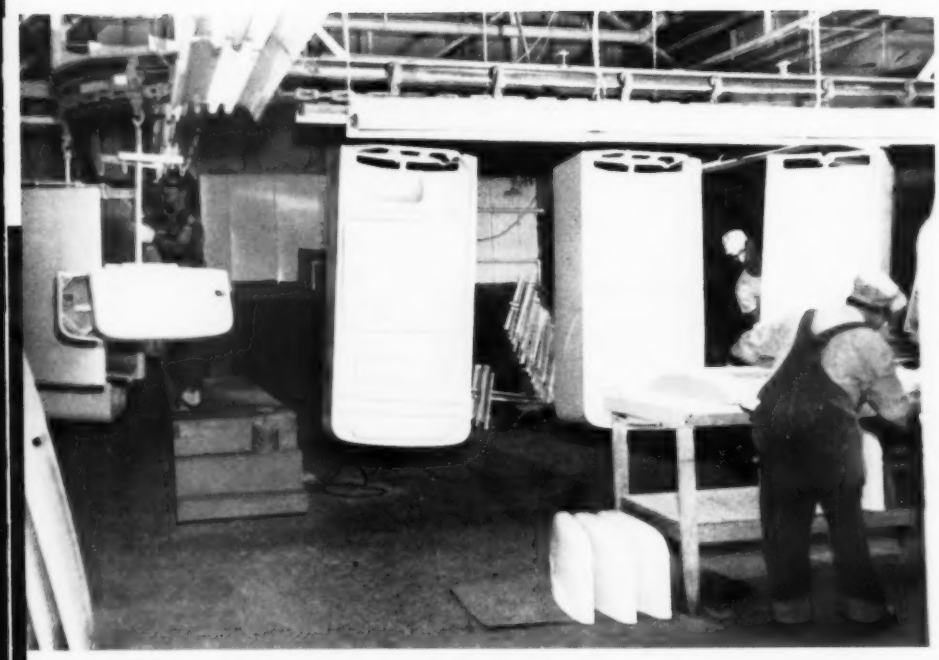


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Photo in center shows sanding and inspection area where cabinets and doors are prepared for the finish coat of synthetic baking enamel.

Organic finished parts (cabinets, doors, etc.) travel in sets on this conveyor line feeding assembly.

ation, and to the final assembly lines.

The cleaning and phosphatizing machine has six stages with tank capacities of 3,000 gallons. The sequence is:

1. Cleaner (alkali) 160° F.
2. Clear water rinse, 140° F. (Replenished with steam line condensate)
3. Same as No. 2.
4. Phosphatizing, 140° F.
5. Cold water rinse (overflow)
6. Chromic acid bath, 140° F.

After the cabinets and other parts leave the phosphatizing machine, they are dried in an on-the-roof oven. (All drying and baking facilities for organic finishing are located above the roof level.)

First coat (primer) is then sprayed at .8 to one mil film thickness, and baked for 45 minutes at 350° F.

From the prime coat oven, the parts travel through a sanding and inspection area, where they are prepared for finish coat. Synthetic baking enamel is used, and applied at .8 to one mil thickness.

On the finish coat line, in a pressurized water wash spray room, five operators spray at floor level, with one additional sprayer in a 6-foot pit for catching the cabinet tops and top edges of the doors (hung on the chain in an inverted position).

Baking of finish coat is for one hour at 260° F. Every effort is made to approach a *baked thickness* of two mils total.

In the paint mixing room there are tanks for preparing the synthetic en-

Conveyor at left feeds sandblast where welds on liners are blasted prior to pickling in porcelain department. Loaded baskets feed to monorail conveyor through pickle room in center background.

amel. One unit is used for mixing and setting temperature and viscosity. Another is a closed system for distribution of the enamel by pump to the spray guns.

A temperature check is made on the ovens every two hours to maintain the desired temperature curve.

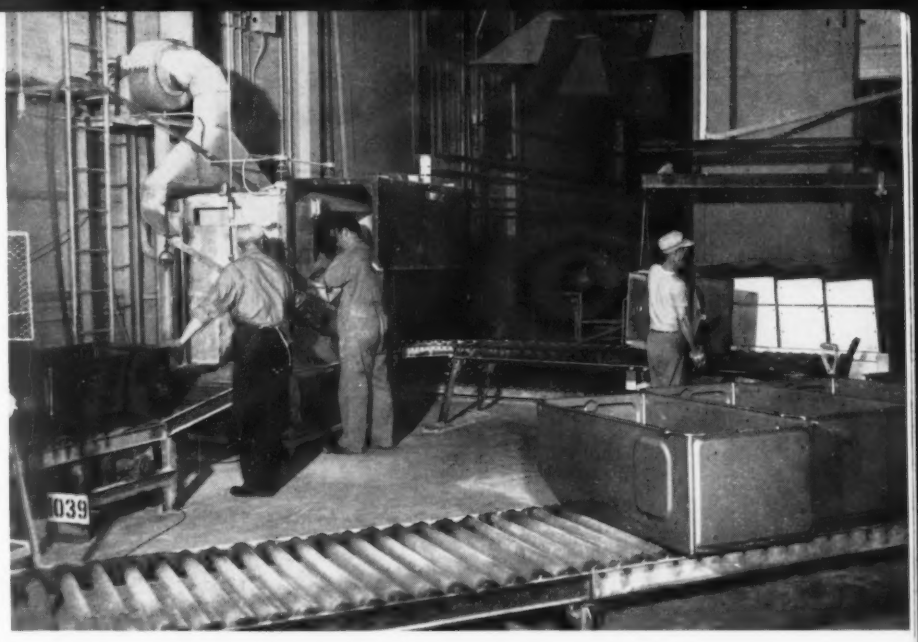
As the ware leaves the final bake and inspection, the paint line conveyor carries it to assembly. This conveyor, 4,096 ft. long, makes a complete circuit in four hours.

PORCELAIN ENAMELING

At a point outside the pickle room, food liners are placed on a gravity roller conveyor which forms a "Y" to feed one type of liner to sandblast and another direct to an area for loading pickle baskets.

Due to a rather complicated welding system, Dual-Temp liners get a sandblast for all welded joints, while the liners for conventional units do not require this extra operation.

The *pickle room* consists of eleven tanks and a tank-type dryer equipped with a propane gas-fired hot air heater. All tanks are steel with the two for sulphuric acid, one for acid rinse and one for nickel lead-lined. The first three tanks in the series are cleaner tanks boiling 8% solution (20 minutes). Tanks No. 4 and No. 5 are hot water rinse. Tanks No. 6 and No. 7 carry a 7% solution of sulphuric acid at 140 to 150° F. (12 minutes). Tank No. 8 is a cold overflow rinse. Tank No. 9 is a nickel solution (½ oz. single nickel salts



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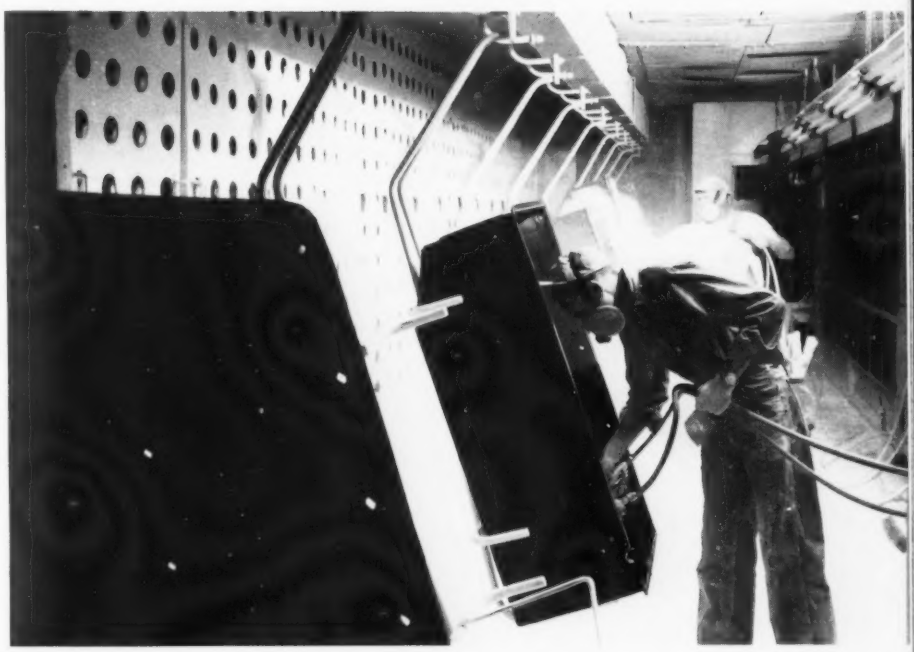


finishfotos

The 18-foot-long finish coat spray booth for liners, shown in center photo, is pressurized and fed with filtered air.

Final inspection of food liners on continuous furnace chain. Note that ground and cover coats are fired on same chain.

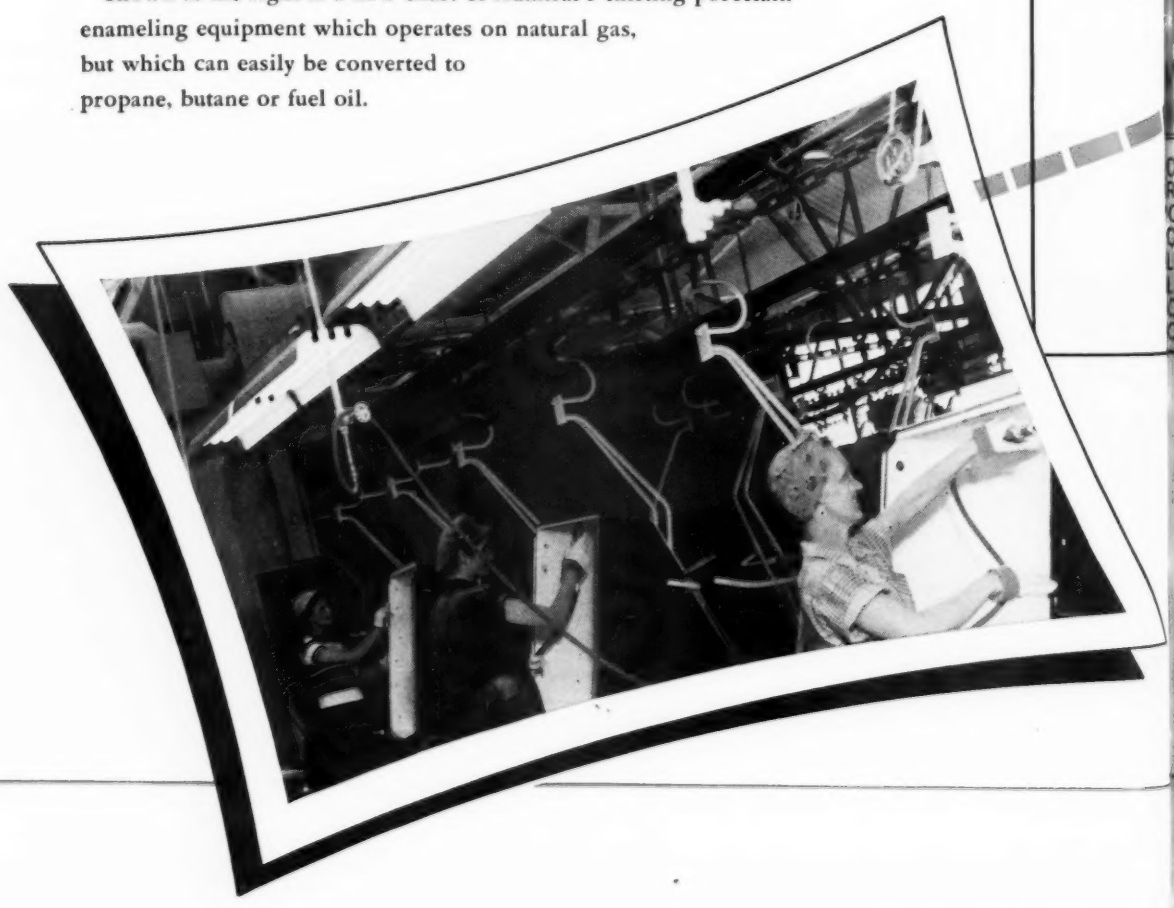
FERRO-DESIGNED ENAMELING SYSTEMS PRODUCE 1500 LINERS/DAY FOR *Admiral*

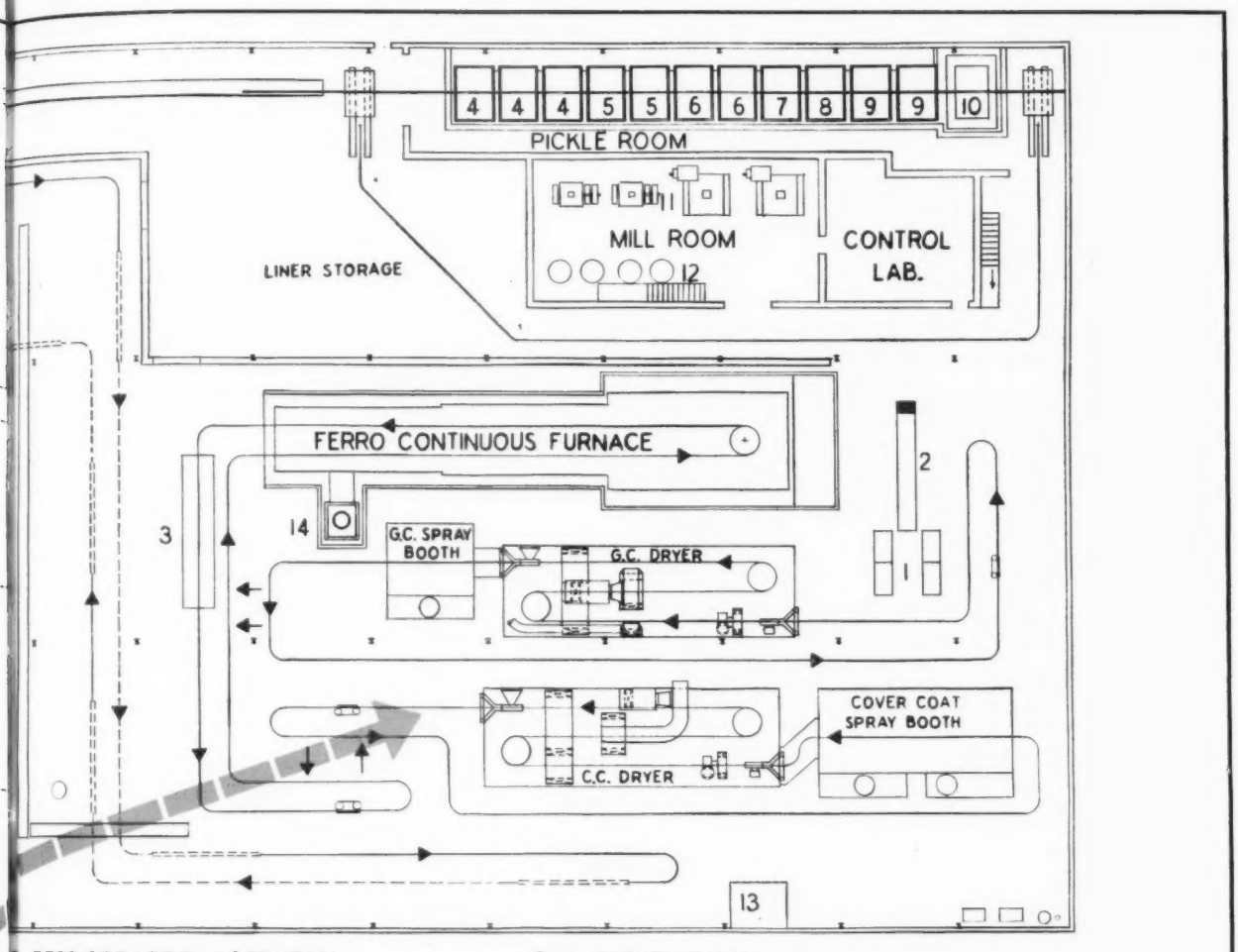
Plans started for doubling porcelain enameling capacity

On specially designed Ferro enameling equipment Midwest Manufacturing Corp., an Admiral subsidiary, is now turning out 1500 Dual-Temp and standard refrigerator liners a day at their Galesburg, Ill. plant. The process is unique in that both types of liners can be run simultaneously on the same equipment.

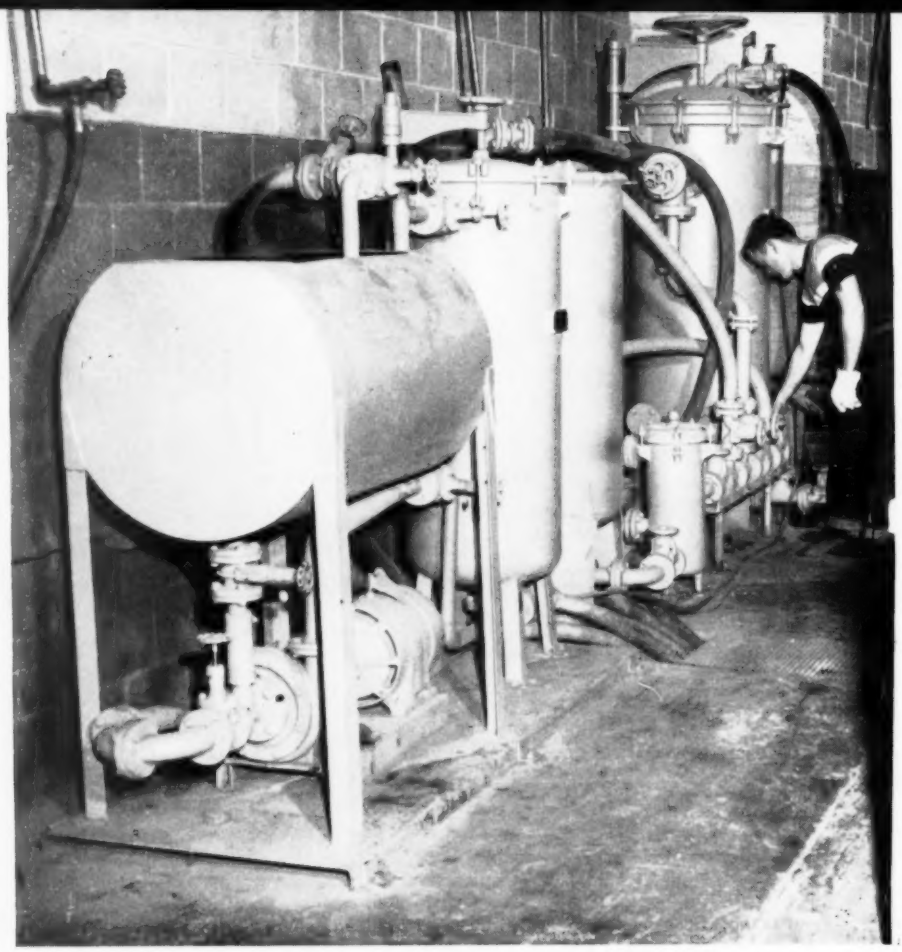
Admiral's production capacity will soon be doubled by the addition of new equipment. This equipment includes a completely new Ferro-designed enameling process which will permanently finish electric range units in addition to handling Dual-Temp and standard refrigerator liners.

Shown at the right is a flow chart of Admiral's existing porcelain enameling equipment which operates on natural gas, but which can easily be converted to propane, butane or fuel oil.



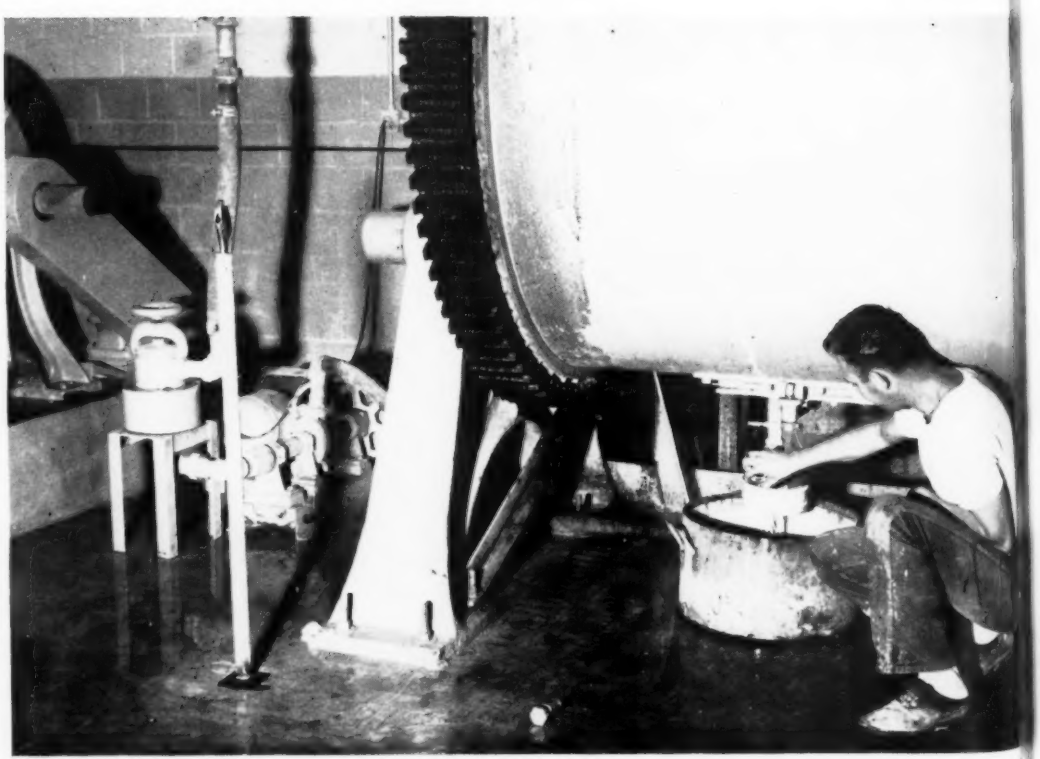


Admiral's compact and efficient porcelain enameling system showing routing of appliance parts from pickle room through ground and cover-coat processes, into a Ferro continuous furnace for firing. Complete system was designed and installed by Ferro engineers. Photograph at left shows air brushing operation that follows cover-coat drying.



This installation of filtering equipment in the pickle room of the Admiral plant handles the clarification of nickel and neutralizer solutions.

finishfotos



Unloading cover coat mill into receiving tank. Milled enamel is pumped through closed-type magnetic separators to overhead storage tanks. Note pump and magnetic separator assembly on the left.

per gallon). Tank No. 10 is for weak sulphuric acid (one gallon to 2,000 gallons water). Tank No. 11 is a soda ash-borax neutralizer.

An installation of filtering equipment in the pickle room serves the nickel and neutralizer tanks.

Two overhead monorails with hoists handle the pickle baskets—the first to the acid tank, and the second beyond this point. The well ventilated pickle room can handle 600 liners in 8 hours.

In the *mill room*, titanium type cover coat frits are milled in 2500 pound production mills to a fineness of 3% on 200 mesh.

Control of water for all enamel slip is assured through the use of a modern water demineralizing system.

Slip is unloaded by gravity through a 20-mesh screen into an unloading tank, and then pumped through a closed type magnetic separator into two overhead tanks (280 gallon—agitated). Enamel is unloaded by gravity through a centrifugal sieve into 60-gallon pressure tanks for the spray line. The enamel is set for a pick-up of 117 grams wet, and a gravity of 1.72.

Finish coat enamels are fired on the same chain with ground coat at 1530° F.

Ground coat slip is loaded into water-cooled dip tanks in the mill room (pick-up 104 grams wet, specific gravity 1.60). The dip tanks circulate the enamel through a 30-mesh screen and closed type magnetic separator.

The portable dip tanks are rolled to a point on the production floor where parts can be dipped and hung direct to the ground coat dryer chain. Dryers use propane or butane, plus recuperator heat from the furnace. Temperature is 370° F.

At the end of the ground coat dryer there is a reinforcing booth where regular ground coat is used for reinforcing welds, flanges and sharp areas.

Liners are placed on 4-foot centers, with the chain traveling 16 feet per minute through a U-type furnace with a 50-foot firing zone. The furnace is equipped to use propane, butane, natural gas or oil. The cover coat spray booth is a pressurized,

ROTOSPRAY

STANDARD for the enameling industry

Rotospray is the accepted method of sieving enamel slip at Admiral's refrigerator plant in Galesburg, Illinois. Rotospraying assists in the proper cleaning of milled enamel to insure against contamination, and to help in the production of Admiral's new appliances.

And throughout the enameling industry, hundreds of Rotosprays are on guard for the proper cleaning of milled enamel and to help in the production of the finest quality enamel finishes for refrigerators, ranges, washing machines, in fact for all types of enameled products.

For over two decades, Rotosprays have served porcelain enameling plants as the most successful and economical method of sieving enamel slip.

Yet, after more than twenty-three years of service, the first Rotospray put in service in an enameling plant is still in operation. That's the story of Rotospray's sturdy construction and trouble-free operation.

Photo shows Rotosprays in use in the mill room of Admiral's enameling plant in Galesburg, Illinois.

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Small section of the Admiral refrigerator assembly department.

water wash installation which can accommodate four operators. A cooling and heating unit on top of the booth controls temperature for comfort of operators. The cover coat dryer (propane or butane) is maintained at 350° F. with ware traveling at a chain speed of 16 feet per minute.

Ware is brushed on the conveyor with operators using air tools.

Standard liners run from 70 to 90 per cent in one-coat white. Dual-Temp liners get two white coats as standard finish.

Inspection is on the furnace line, with one floor man responsible for ground coat and another for white. An enamel thickness check is included in final inspection.

An automatic method is used for cleaning the plates on the furnace chain as they leave the cooling zone. A "gadget" raises each plate and turns on a blast of air for cleaning. There is also a small blower on the top of the furnace to reduce temperature of the plates.

To avoid losing ware in the event of a power shut-off, the furnace chain can be operated with a stand-by gasoline engine. The drive belt can be immediately changed from electric power to the gas motor (about 2 minutes). The chain is also equipped for reverse travel in the event of a wreck inside the furnace.

An interesting innovation on the ground coat dryer chain provides that if there is a wreck or sudden "jerk" the chain stops automatically.

ASSEMBLY

DUE to the secondary cooling system required for the Dual-Temp refrigerator models, a sub-assembly conveyor is employed. Here the cabinet liner is equipped with shelf studs, light socket and "steri-lamp" socket.

The secondary cooling system is then "wrapped around" the cabinet, and metallic thermo-mastic is applied around all tubes where they touch the liner, to accelerate heat transfer. The entire secondary assembly is covered with a grease, and chemical-resistant sheet, and after inspection is hung on the conveyor leading to the main assembly lines.

The hermetically-sealed refrigeration system is given a complete check for capacity, noise and leaks. An

finishfoto

This specially-designed equipment is used to form the secondary cooling systems to fit the shape of the liners of the food storage compartment for the Dual-Temp models.

Blown-in insulation is used for both doors and cabinets. The door in the foreground has just emerged from the insulating equipment.

electronic detector is used to discover gas leaks.

Main assembly building

Two parallel cabinet assembly lines, each 520 feet long, and two door assembly lines, each 260 feet long, plus many test, inspection and repair conveyors of varying lengths are located in the main assembly building.

At the head of the line is a service conveyor bearing cabinets, doors, and door liners and, except for door liners, these parts are removed and placed on their respective assembly conveyors. The door liners are stacked on a dolly and eventually moved one hundred feet up the line to their assembly area.

Cabinet assembly lines are placed 12″ from the floor, and conveyor is designed to travel at speed of from 3 to 24 feet per minute. The door assembly lines are placed 32″ from the floor, and are designed to travel 3 to 12 feet per minute.

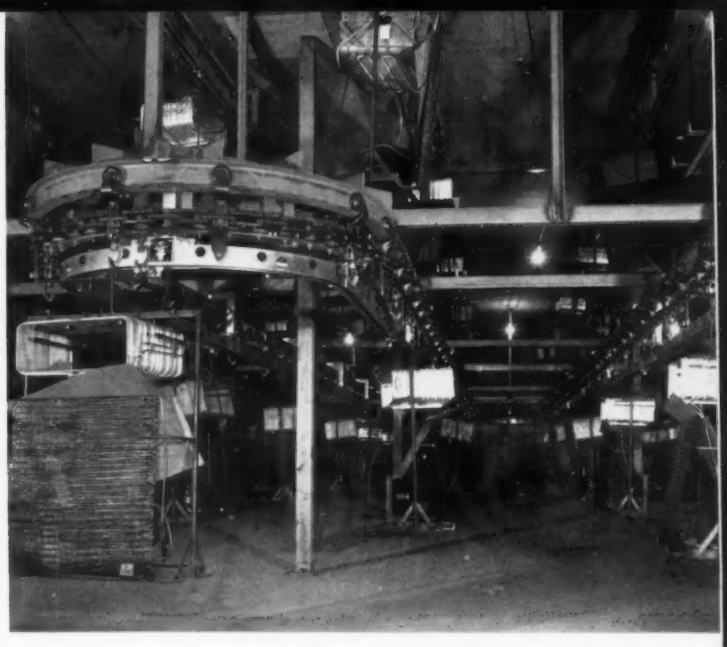
Following the door line, we view in succession the installation of nameplate, hinges, lock mechanism, door handle, and sealing compounds. Next comes the insulation. Admiral uses a "blown in" pressure insulation method for both doors and cabinet bodies. Next, the door liner, which has been previously sub-assembled, is put in place, and the door gasket is installed. Following inspection, the door is conveyed to the cabinet

Left: Installing liners in finished refrigerator cabinets on one of the 520-foot long final assembly lines.

Below: After compressor units are tested for noise in a "quiet room," this inspector uses an electronic detector connected to an amplifier to discover any refrigerant leaks.

finishfoto

Assembly and testing of control units. This station is located at a point on the assembly line where controls are installed.



Section of new test room located in range plant where units are subjected to leak, noise and performance tests. This conveyor system provides for continuous electrical contact.

assembly point for final assembly.

The refrigerator cabinet undergoes sealing operations and passes through the blower station for insulation. Breaker frames, cold controls, etc., are installed as the unit travels on its back down the assembly line.

At this point, the cabinet is placed upright on the conveyor and the door installed and checked. Following installation, the refrigeration unit is plugged into an overhead trolley electrical supply and run for 20 minutes while on the assembly conveyor. Meanwhile, the evaporator doors are mounted, light bulb and lock strike installed, and various inspection operations are performed.

Roller-conveyors feed units to insulated "hot room"

At the end of the final assembly lines, roller conveyors feed an insulated "hot room" for an extended operating test of the completed unit.

There are four rooms in the "test laboratory" in which temperatures are controlled from 70° to 110° F. The capacity of these rooms is such that 40 cabinets can be run on test at one time. They are tested for cycling, percentage of run time, and KWH consumption. Also recorded are inside and outside temperatures of the refrigerators and the units at all points. These readings may be recorded manually by reading the potentiometer scales, and there is also automatic recording equipment.

Below: By forcing air under pressure into the hermetically-sealed cabinet, this test room inspector can detect the tiniest leak with his stethoscope.

Right: At this point on assembly line, evaporator doors are attached to full-width freezer compartment. Note hairpin-shaped heating element at bottom of freezer for flash defrosting freezer unit.

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In the "humidity" room, both temperature and humidity are controlled. This room is used particularly for life tests of the finish on the refrigerator, and is not a production test room.

MATERIALS HANDLING—PACKAGING & SHIPPING

THROUGHOUT this description of Admiral refrigerator production facilities, mention has been made of various conveyors of all types which serve specific materials handling problems. Included are thousands of feet of overhead power conveyor, many long slat-type powered conveyors for fabricating and assembly lines, powered belt conveyors for carrying components to overhead storage for serving the assembly lines, and for carrying crated finished products to storage. In addition, numerous sections of roller type gravity conveyors are used in fabrication, assembly and test rooms.

Fork lift trucks are also extensively used. They transport dies to the presses, and carry stacked steel tote boxes holding many components and supplies.

Two packaging and crating lines feed from final assembly and the test room area. One slat-type conveyor line is for Dual-Temp refrigerators; the other for standard units. The refrigerators travel on crate bases installed on the assembly line. Careful inspection of interior and exterior precedes the installation of shelves. Smaller components are carefully packed in cartons and stowed in the interior. Pressure sensitive tape is used extensively for "holding" interior parts, and is used for securing the door on the standard refrigerator line. Two strips of a special type of covered steel banding are used to secure the door before crating. Purchased containers are assembled "on the line" to completely enclose the finished refrigerator as it reaches the end of the packaging conveyor. At this point, an "up-ender" transfers the completed unit to a belt conveyor feeding storage and shipping.

The new warehouse permits the loading of 13 cars simultaneously on a loading platform within the warehouse. As in the case of many of the production problems, that of carloading was worked out on the "model plant" before necessary plant changes were made, such as lowering the railroad tracks, etc.

Production coordination

The basic problem of making the Admiral refrigerator plant "click" is in the hands of a production department whose prime function is the issuing of orders in the shop for fabricated parts, and the issuing of assembly schedules for the weld assembly and final assembly lines. This function naturally requires close control of all fabricated parts, the flow of material in the shop, as well as the flow of purchased items required for final assembly of the cabinet.

For example, if there were 2,000 11-foot cabinets scheduled for the final assembly line on the first day of the month, it would be necessary to have the small metal components fabricated a week or ten days in advance so that these parts could be used in black metal assembly on or in con-

Crated refrigerators continue on the packaging conveyor to this "down-ender" which lays the crate on its back on a belt conveyor bound for the warehouse, where an "up-ender" places the crated product upright.

Two main assembly lines converge here into a single conveyor for final inspection and packaging. (Cabinets removed to show construction of conveyors.)

finishfotos

Padded steel strapping is used to secure doors on Dual-Temp refrigerators. Cloth tape is used on smaller single door models.

B. L. Godsil, executive assistant, watches application of N tional Safe Transit Label to refrigerator container. Man left is applying shipping tag.

junction with the larger parts going down the weld assembly line prior to finishing.

All purchased parts — the plastic breaker frames, door gaskets, hardware, refrigeration units, insulation, etc. — must be scheduled for delivery to the plant at the right time and in the right quantities.

Plant expansion

As this is written, the new range plant is in production on electric ranges, and evaporator units for refrigerators. Inasmuch as all porcelain finishing of stove parts is done in the main plant, and the finished evaporator units are used at refrigerator assembly, the large enclosed conveyor was installed for service between the two plants.

For many months the Galesburg plants have been a beehive of building, rebuilding, and equipment installation to meet the expanding production of the growing Admiral appliance lines.

The Admiral story

→ *from Page A-10*

television, the company rolled up a record of $230,397,661 in sales during 1950, with net earnings of $18,767,554 after taxes. As might be expected, this wiped out the losses sustained in the early development of the appliance line.

During 1951, a year which company executives choose to consider a comparatively "normal year," sales and earnings recorded were $185,925,058 and $9,586,833 respectively.

The current chapter

The current chapter for Admiral, and the final chapter in *this* story of progress from a $3,400 investment to a book value of holdings totaling $40,000,000 shows the company operating plants in the following cities:

Television plants in Bloomington, Illinois; Harvard, Illinois, and McHenry, Illinois; four plants in Chicago (including Molded Products Corp. — a subsidiary); a TV cabinet plant in Shelbyville, Indiana; and a rapidly expanding series of plants in Galesburg, Illinois (Midwest Manufacturing Corp. — subsidiary). It is in Galesburg that ranges and "upright" home freezers are now being manufactured, and where a broader line of home appliances may eventually flow from production lines. In addition, Admiral owns 95 per cent of Canadian Admiral Corporation, Ltd., founded in October, 1946 in Toronto. Canadian Admiral now occupies a new plant at Port Credit, Ontario, near Toronto, where it has a capacity of 150,000 television receivers and 50,000 radios a year.

Later chapters in the story of the appliance and so-called "hard goods" lines must be reported as it is recorded, but it can be said at this time that, as in the case of many of the appliance leaders, Ross Siragusa and his "backfield" are extremely optimistic concerning the appliance industry in relation to other segments of the American manufacturing scene.

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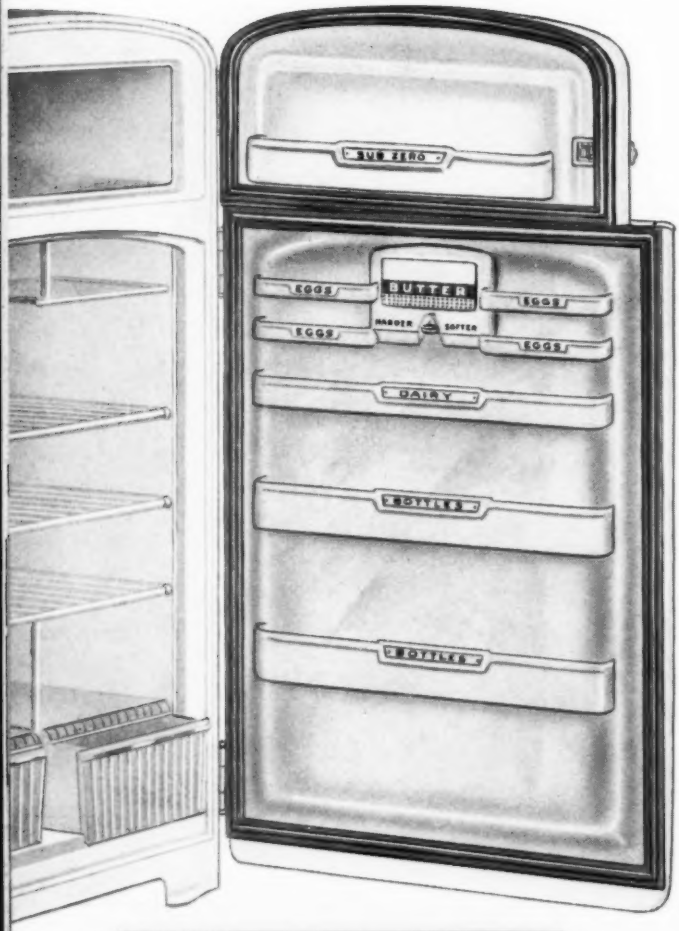

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1 mold replaces 3 . . . trays, butter warmer and the liner itself. Stronger, lighter weight, less assembly expense.

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"QUICKFREZ, INC."

Sanitary Refrigerator Co., Fond du Lac, Wis., has changed its name to Quickfrez, Inc., it was announced by Henry Uihlein, president.

FRIGIDAIRE PAYROLL AT 20,000

Employment at the Frigidaire Division of General Motors Corp., Dayton, Ohio, hit 20,000 early in December, the highest it has been since the record 23,500 set in July, 1948.

Frigidaire intends to hire 2000 more workers by the end of January. "This move is necessary to meet present and anticipated demands," said Mason M. Roberts, Frigidaire general manager and GMC vice president.

MOOS SUCCEEDS BATTLES AT MIDWEST MFG.

S. S. Battles, vice president of Admiral Corporation and general manager of Midwest Manufacturing Corp., Admiral subsidiary at Galesburg, Ill., resigned December 31 because of ill health. John B. Huarisa, executive vice president, said that L. H. Moos, plant superintendent, will be general manager of Midwest.

MCGRAW ELECTRIC NAMES CAMPBELL AND KNIGHT

McGraw Electric Co., Chicago, has announced the appointment of Scott Campbell as vice president and general manager of the Clark Division, makers of gas and electric water heaters and air conditioning equipment. Frank B. Knight was appointed vice president in charge of production.

RECORD CARRIER SHIPMENTS

Shipments of air conditioning equipment by Carrier Corporation, Syracuse, N. Y., set a new record during the fiscal year ended October 31, totaling 112,185,000 pounds, or about 2,252 carloads. The previous record of 88,214,000 pounds was shipped in the 1951 fiscal year.

Editor's Note:

***Finish* readers have the apologies of our editors for the necessarily abbreviated News Section in this issue, due to unusual space requirements for other important features. You may expect to see our usual complete news section on industry developments and personnel items effective with the February issue.**

ALLEGHANY CORP. BUYS LARGE NESCO STOCK BLOCK

Alleghany Corp. has purchased 25,000 shares of Nesco, Inc. capital stock from Arthur Keating and his family. In announcing the purchase, Alleghany said it bought the stock for investment and that Arthur Keating would remain in charge of Nesco affairs. Keating, who is chairman and president, still holds about 30,000 of the company's 479,000 outstanding shares.

HOW WHITE IS WHITE?

Look for an important progress report on the campaign for the standardization of white finishes for kitchen and laundry appliances in February *finish*.

MOTOR WHEEL NAMES SALZER

Herbert C. Salzer has been appointed assistant to the director of purchasing, Motor Wheel Corp., Lansing, Mich.

NESCO NAMES SHULTZ V.P. OF MANUFACTURING

Nesco, Inc. has announced the election of Edward Shultz as vice president in charge of manufacturing. He formerly was manager of the company's plant in Jacksonville, Ill. It was also announced that Ray Paddock was named assistant vice president in charge of engineering.

WAGNER MFG. PURCHASED BY RANDALL COMPANY

The stock of Wagner Manufacturing Co., Sidney, Ohio, has been purchased by Randall Company, of Cincinnati. No change is contemplated in management of the Sidney firm which will be operated as a subsidiary. Wagner produces cooking utensils, and Randall makes automobile trimmings and metal working machinery.

ARMCO'S INGWERSEN DIES

John A. Ingwersen, vice president-distribution, Armco Steel Corp., died December 5 in Middletown, Ohio. He had been with Armco since 1923.

DEEPFREEZE EXPANSION TO DOUBLE FREEZER PRODUCTION

L. J. Sorensen, vice president, Motor Products Corp. and general manager of the Deepfreeze Appliance Division, has announced a $1,500,000 expansion at Lake Bluff, Ill.

The expansion, which will provide an additional 100,000 square feet of manufacturing space, will result in doubling the firm's home freezer production within a year. The present plant was completed in 1950 at a cost of $7,000,000.

"When the few facilities are completed, we shall be able to boost our

production of home freezers and refrigerators to about 600,000 units annually," stated Sorensen.

USARCO UPS FEINBERG

David E. Feinberg has been named general manager of U.S. Air Conditioning Corp., Minneapolis, to succeed his father, A. A. Feinberg, who died October 7.

TUTHILL TO YS & T CHICAGO AREA

John M. Tuthill, manager of flat rolled sales, The Youngstown Sheet and Tube Co., Youngstown, Ohio, has been appointed assistant general manager of sales with offices in Chicago.

PENNSALT'S ROELLER DIES

Russell S. Roeller, 60, general sales manager, Pennsylvania Salt Mfg. Co., died November 12 in Phoenixville, Pa. Just the previous week Roeller had been honored for 30 years of service with Pennsalt.

PERMUTIT PLANT EXPANSION

With the completion of The Permutit Company's 1952 program for doubling the capacity of the Birmingham, N. J., works for the production of ion exchange resins, H. W. Foulds, president, stated the company has placed contracts for further extensions and improvements, including a new laboratory and pilot plant building.

FOOTE MINERAL RESEARCH APPT.

Foote Mineral Company has announced the addition of Dr. J. F. Haseman to the firm's research and development staff in Berwyn, Penna.

ROYAL METAL ACQUIRES CONNEAUT PLATING

Royal Metal Manufacturing Co., Chicago, has acquired Conneaut Plating Industries, Conneaut, Ohio, it was announced by H. A. Green, Royal president. The new division will service Royal's other plants with plated parts for its extensive line of metal furniture.

In the past three years, Royal has acquired additional facilities in Walden, N. Y., Warren, Pa., and Los

Angeles, and has built a new plant in Preston, Ontario. The company is now adding some 20,000 square feet of manufacturing space to its main factory in Michigan City, Indiana.

G-E SEES 1953 APPLIANCE PRODUCTION UP 16%

General Electric Co. is expecting its 1953 production of appliances to be up about 16% over 1952, according to Herbert A. Warren, distribution manager of the company's plant in Louisville where G-E will be turning out all of its large appliances, except refrigerators, by the end of 1954. About 15,000 workers will be employed.

SERVEL ANNOUNCES REFRIGERATOR REQUIRING NO ICE CUBE TRAY

A new type of home refrigerator that freezes ice cubes without trays, stores the cubes in a basket and replaces them as they are used, has been announced by W. Paul Jones, president, Servel, Inc., Evansville, Ind.

The entire operation of making, storing and replenishing the cubes will be completely automatic, said Jones. He said that actual working models have undergone secret operating tests in typical homes since 1949.

INDUSTRIAL LUBRICANTS NAMES KENNEDY GENERAL SALES MGR.

Industrial Lubricants Co., Inc., Detroit, has announced the appoint-

W. C. KENNEDY

ments of W. C. Kennedy as general sales manager and Hubert E. Evans as chief chemist.

The announcement stated that Kennedy joined the company with 20 years executive experience in the automotive, materials handling, aircraft, and industrial chemical and lubrication industries. Evans, previously with another manufacturer in a related field, will have charge of new product development and control.

Industrial Lubricants is one of the country's oldest manufacturers of polishing cement, drawing compounds, cleaners and rust preventives.

DEERING AIR CONDITIONING ANNOUNCES EXPANSION PROGRAM

The Deering Air Conditioning Co., Cincinnati, has announced the acquisition of the Sterling Cut Glass Co. plant, and that building alterations will insure production of up to 300 room air conditioners a day.

LENNOX PLANNING TO MARKET AIR CONDITIONER NATIONALLY

John W. Norris, president, Lennox Furnace Co., has announced that his company will embark upon a nationwide sales program of all-season air conditioning equipment which has been in the process of development in the general laboratory at Marshalltown, Iowa.

MIDWEST ENAMELERS TO DISCUSS METAL CLEANING FUNDAMENTALS

At the January 10 meeting in Chicago of the Midwest Enamelers Clubs, G. A. Lux, director of technical education, Oakite Products, Inc., will discuss "Some Fundamentals of Metal Cleaning."

G. A. LUX

Another feature of the program will be the appearance of a barber shop quartet from New Process D-Enameling Corp., of Aurora, Ill.

HOTPOINT MERCHANDISING MGR.

Clifford C. Gramer, formerly advertising manager, Hotpoint Company, has been named merchandising manager, it was announced by John F. McDaniel, vice president of marketing.

U. S. STEEL ANNOUNCES TOP MANAGEMENT CHANGES

United States Steel Corp. has announced five major changes in top management. Benjamin F. Fairless, chairman and president, will continue as chairman and chief executive officer. Clifford F. Hood was elected president and a member of the board. Robert C. Tyson, named vice chairman of the finance committee and a board member, will continue as comptroller. Harvey S. Jordan was elected executive vice president-operations. Howard E. Isham was elected vice president and treasurer.

FERRO GIVES WEAVER AWARDS

The annual Bob Weaver Award of Ferro Corporation was presented to three Ferro employees recently. Presentation of the awards was made in Cleveland, December 12, by Robert A. Weaver, chairman of the board.

Named as the 1952 winners were Harold P. Connare, for his work in defense contracts; Milton L. Simmons, for his part in establishment of Ferro frit manufacture in Japan; and William L. Probeck, for his work in refinement of processes and manufacturing in frit and clay plants in Nashville.

Paint industry meeting

→ *from Page 35*

ucts with metallic coatings are lacquered or painted anyway.

Military applications

Temple listed the three most important requirements in protective coatings for military applications as follows: improved durability, greater adhesion, and a truly indicative accelerated weathering test. Although service performance of a coating is of paramount importance in most military uses, stated Temple, the producibility aspect must always be given consideration.

He indicated that lacquer is being used extensively in aircraft, tanks, guns, automotive equipment and components, ammunition, and numerous quartermaster items such as Arctic equipment, caskets, skis, furniture, etc. "The use of the *hot spray* technique is increasing," said Temple.

"Styrenated-alkyds are also of increasing interest, although their lack of gasoline resistance is a detriment in some fields. Vinyl-alkyds are under active investigation and appear promising for many applications.

"Thiokol-Saran base finishes have been developed for gasoline tanks, pipes, etc. Vinyl and Saran finishes are being used and further developed. Epoxy types are also being developed and evaluated.

"It is evident that as new polymers are developed by the synthetic resin industry, they are being investigated for possible utilization in protective coatings for military use," continued Temple.

Major coating problems of military services

Temple listed major coating problems of requirements of the military services as follows:

1. A tough, resilient, scuff-resistant coating, with excellent adhesion, to withstand rain impingement at sonic and supersonic speeds, as well as the wear and tear incident to servicing and maintenance of the aircraft.
2. Coatings resistant to corrosive propellant chemicals for use on rocket and assist-take-off applications.
3. An improved finish for magnesium.
4. A self-sealing coating for molybdenum.
5. High heat-resistant coatings for applications such as exhaust manifolds.
6. Improved fire-retardant coatings for shipboard applications, barracks, etc.
7. Improved gasoline-resistant coatings for drums, tanks, and pipe lines.

Lacquers for aluminum

Wray told his audience that the most commonly used clear coatings for aluminum are usually referred to as methacrylate lacquers. "These lacquers," Wray pointed out, "are characterized by water white color, good resistance to discoloration and perfect transparency. . . . Furthermore, these lacquers possess excellent chemical resistance; their abrasion resistance, particularly in the presence of a little nitrocellulose up to about 10 per cent, is very good and they are better in this respect than the cellulose lacquers."

The metacrylate lacquers are finding increasing use on architectural

aluminum parts, with one principal use that of protecting the aluminum surface during the process of erection of a building. These lacquers should remain protective for a year or more after application and weather exposure because a building may be a year or more in the process of erection.

"About the only type of lacquers which we have tested in our laboratory which will fully meet these requirements are the methacrylate lacquers, and we have found an increasing number of lacquers of the methacrylate type which are satisfactory for this purpose," concluded Wray.

STEEL KITCHEN CABINET MANUFACTURERS MEET

On Wednesday, December 3, the Steel Kitchen Cabinet Manufacturers Association held a meeting at the Hotel Cleveland, Cleveland, Ohio. At a press conference following the meeting, industry leaders reported that the industry is entitled to an optimistic view for the year 1953. Spokesmen for the association reported that the membership represents 90 per cent of the total industry volume.

Reporting on the first anniversary of the formation of the new association, it was stated that the first year of operation has been a success in formulating plans that will assist the individual manufacturers in answering the demand of the American public for the finest possible kitchen cabinets.

It is felt that the sales potential of the steel kitchen cabinet industry is practically unlimited because of the extremely low saturation point of the market. Factors that serve as a background for the optimism of this group include U. S. government surveys reported to show that in the last ten years there was a 300 per cent increase in the use of steel kitchen cabinets in single homes. It is also reported that in the field of new construction there is an increasing demand for steel kitchens reportedly attributed to the National Association of Home Builders. Unquestionably, kitchens are one of the first considerations in connection with present day home modernization. Consequently, there is an anticipated good demand and continued growth for the industry.

Steel is the answer

The ability of this industry to meet the demand for its products will depend upon the material supply situation as dictated by CMP. The steel tonnage allocations under the CMP program for the first quarter of 1953 will reduce the operating rate of the industry below any previous quarter since the start of the Korean war. When these controls are removed — the industry hopes in the second quarter of 1953 — it is anticipated that a backlog of orders will generally permit full operations by the steel kitchen cabinet manufacturers.

Steel usage by the industry can be judged by the fact that the manufacturers did use 200,000 tons per year before allocation. Steel is now being used by the group at the rate

Photo taken during meeting of Steel Kitchen Cabinet Manufacturers Association in Cleveland.

of 100,000 tons. One cabinet manufacturer estimated the potential steel usage by the group to be one-half million tons.

Optimists in the group feel that the steel situation will be ironed out in sufficient time for the industry to show a worthwhile gain in production and sales during 1953.

The new date for the annual meeting of SKCMA will be set for the month of June, when there will be an election of new board members and a change of officers.

WEST COAST ENAMELERS MEET IN LOS ANGELES

Some 40 members of the Pacific Coast Enamelers Club held their last 1952 meeting in Los Angeles, November 21.

Following the usual business, Frank Fernholtz, assistant secretary-treasurer, read a letter from Edward Mackasek, managing director of the Porcelain Enamel Institute, stating that the entire PEI executive committee had accepted an invitation to be present at the Club's next meeting on March 20.

Other PEI officers who accepted the invitation include: W. A. Barrows, of Barrows Porcelain Enamel Co., PEI president; R. A. Dadisman, of Armco Steel Corp., past PEI president; and John Oliver, PEI executive secretary.

Above: Panel members included Roy Hastings, of Gaffers & Sattler; Al Sattler, of U. S. Porcelain Enameling; George Cole, DeVilbiss; and R. B. Felton and Ed Hansen, of Ferro.

Below: New officers include Hyman Leggett, California Metal Enameling, president; Leo Madigan, Western Stove, vice president; Frank Fernholtz, Fernholtz Machinery, secretary-treasurer; and Bill Blackburn, Ferro, assistant secretary-treasurer.

The next business conducted was the election of officers as follows:

President, Hyman Leggett, of California Metal Enameling Co.; vice president, Leo Madigan, of Western Stove Co.; secretary-treasurer Frank Fernholtz, of Fernholtz Machinery Co.; and assistant secretary-treasurer, William Blackburn, Ferro Corp.

During the meeting, an interesting panel discussion covering all facets of the porcelain enameling industry was held. Both pre-submitted questions and questions from the floor were discussed. Subjects covered included steel, pickling, mill room practice, general enameling, and frits. While many of the questions invoked an answer based on theory, the diverse views presented, coupled with practical experiences that hinged upon the question, were both interesting and enlightening to the entire group.

WALLY BAUER TO GLOBE BRASS

It is reported that Wally Bauer, formerly of Western Stove Co., is now production manager of the porcelain enameling division of Globe Brass and Copper Co., Los Angeles.

U. S. STEEL NAMES MYERS MARKET DEVELOPMENT DIRECTOR

Robert C. Myers has been appointed director of market development of United States Steel Co., it was announced by David F. Austin, executive vice president-commercial. Myers succeeds Robert J. Ritchey who resigned to accept a position with another company.

O'KEEFE & MERRITT UPS LAHEY

Bruce A. Lahey has been appointed production manager of the porcelain enameling department of O'Keefe & Merritt Co., Los Angeles. He has been with the company for 18 years.

NESCO TO MAKE SMALL APPLIANCES AT JACKSONVILLE

Nesco, Inc. is readying its production lines in Jacksonville, Ill., for the manufacturing of small electrical appliances. Arthur Keating, board chairman, said the new products will be introduced early in 1953.

N. W. CHEMICAL ADDS TO STAFF

Charles A. Frawley has joined the sales staff of Northwest Chemical Company, Detroit, to service accounts in northern Ohio. He formerly worked for Klaas Machine and Manufacturing Co., Waverly Petroleum Products Co., and the Pennsylvania Railway.

HEADS PENNSALT SALES RESEARCH

All statistical and analytical functions pertaining to marketing for Pennsylvania Salt Manufacturing Co. have been combined into a newly-organized sales research department, with E. M. Ott as manager, it was announced by William P. Drake, vice president.

CHICAGO VIT NAMES HOWARD

E. E. Howe, director of research, Chicago Vitreous Enamel Product Co., has announced the appointment of William K. Howard to the research and development laboratory staff. Howard holds a Bachelor of Science degree from Hilton College. The major portion of his studies were among the physics courses with particular emphasis on X-ray and spectroscopic analysis, and on quantitative analysis in chemistry.

CLARENCE RANDALL NAMED "NAM MAN OF THE YEAR"

Clarence E. Randall, president, Inland Steel Co., was selected as "NAM Man of the Year" by the Old Timers Council of the National Association of Manufacturers.

The award, made at the 57th annual conference of American industry, was based on Randall's speech, "These Are the Facts, Mr. President", and his book, "A Creed for Free Enterprise", both of which stemmed from the steel seizure.

"His philosophy of freedom," the Council said, "has proved an inspiration and guidance to leaders in industry and commerce in meeting their political and economic obligations."

Properties of steel...

→ *from Page 25*

Some of them may save you a lot of money and reduce your headaches immeasurably.

2. Of the non-special steels, enameling iron is the best metal yet produced. Use it if at all possible for high quality finishes.

3. If enameling iron is not obtainable then use rimmed mild steel with first preference for the cold reduced product.
4. Use killed mild steel as a last resort.
5. By all means work with your purchasing department and know beforehand what metal you are going to have to enamel and how to process it.

Adapted for finish from a paper before the 1952 Shop Practice Forum of the Porcelain Enamel Institute.

NEMA annual meeting

→ *from Page 32*

the advantages of electric range cooking. Stress will be laid on the need for cooperation to make this promotion successful.

The Electric Water Heater Section is examining plans to continue to cover with its advertising and other promotional efforts the architects and builders, electric appliance dealers, and plumbers. Considerable interest is being added to all the campaigns.

Freezer teaching kit

As an adjunct of the NEMA Farm and Home Freezer Section's educational work, the new Freezer Teaching Kit, recently off the press, was displayed. This kit fills a need that has been growing along with the home freezer itself. It provides home economics teachers with one very important teaching aid which, up to now, they have lacked — namely, visual material to make such instruction easier and more efficient. It includes 12 beautiful wall charts, and a teaching guide of 11 lessons. Together, they offer the teacher a complete, ready-to-use course in home freezing.

In considering the constantly growing annual sales volume of major electric appliances, the rapid increase in the number of wired homes was brought out. It is expected that by 1960, 99% of the nation's homes will be electrified.

Honor industry's pioneers

Four industry pioneers were honored by the National Electrical Manufacturers Association when it presented them with long-service certificates.

A 60-year certificate, the first ever to be presented by NEMA, was given to Walter D. Steele, president of Benjamin Mfg. Co., Des Plaines, Ill.

Three 50-year certificates were presented to Frank A. Poor, vice chairman of the board, Sylvania Electric Products, Inc.; Charles C. Remsen, assistant to president, Diehl Mfg. Co., Somerville, N. J.; and Lester C. Hart, president, Hi-Voltage Equipment Co., Cleveland, Ohio.

Trend to increased sales and advertising budgets

A definite trend in the coming year towards increased electric company sales and advertising budgets as well as towards larger selling organizations was noted by B. L. England, president of the Edison Electric Institute, as he presented the

results of a recent survey of electric company sales plans for 1953 in an address before NEMA.

HOTPOINT LOOKS TO 25% INCREASE IN BUSINESS IN '53

John C. Sharp, president, Hotpoint Company, said his company is expecting to increase its business about 25 per cent during 1953, and anticipates expanded volume by 1960 that will represent sales on a number of its appliances at six times current levels.

Sharp stated that Hotpoint purchased $33 million worth of production materials in 1952, and anticipates that this will reach $108 million by 1960.

MERCHANDISE MART EXPECTING AN EXCELLENT WINTER MARKET

Rising consumer demand, a better ratio of retail sales to stocks, and the general outlook for continued prosperity in the first half of 1952—all point to an active and well-attended International Homefurnishings Market, January 5-16, according to Wallace O. Ollman, general manager of The Merchandise Mart, Chicago. Early requests for buyer passes show a sizeable increase over the past two markets, Ollman said.

DONNELLY HEADS SERVEL SALES

James F. Donnelly, formerly assistant general manager of the Permaglas Heating Division of A. O. Smith Corp., has been appointed vice president in charge of sales for Servel, Inc., it was announced by W. Paul Jones, president. Donnelly is also president of the Gas Appliance Manufacturers Association.

HARVESTER TO BOOST REFRIGERATION OUTPUT 30%

International Harvester Co. has announced plans for increasing production of refrigeration products by 30 per cent, it was disclosed by R. H. Burnside, assistant manager of the general sales department.

Burnside indicated that Harvester is planning to produce 165,000 refrigerators and 125,000 freezers at its Evansville, Indiana Works. He said the company also plans to produce 30,000 room air conditioners and 10,000 dehumidifiers.

***Chicago Electro-Platers Institute**—presented checks totalling $1600 to detectives as a reward for their efforts in arresting and convicting the burglar responsible for thefts of allocated metals from Chicago plating shops. Left to right: George Haennicke and Al Dean, detectives, Carl F. Hansen, Institute chairman; Peter Nutley, detective; and A. E. Torney, Institute legal counsel.*

WARM AIR HEATING ASSN. HOLDS ANNUAL MEETING

At their annual meeting held recently in Cincinnati, the National

W. D. REDRUP

Warm Air Heating and Air Conditioning Association reelected its slate of officers consisting of the following:

President, W. D. Redrup, chairman, The Majestic Co., Huntington, Ind.; 1st vice pres., C. B. Phillips, vice president - sales, Surface Combustion Corp., Toledo; 2nd vice pres., G. W. Denges, vice president and sales manager, The Williamson Heater Co., Cincinnati; and managing director and secretary-treasurer, G. W. Boeddener.

ENAMELED CAST IRON PLUMBING FIXTURES ASSN. HOLDS MEETING

At the annual meeting of the Enameled Cast Iron Plumbing Fixtures Association, held December 18 in Chicago, Henry J. Held, vice president, Universal-Rundle Corp., Milwaukee, was reelected chairman.

O. A. Kroos, executive vice president, Kohler Company, Kohler, Wis., was reelected vice chairman. D. D. Couch, vice president - sales, American Radiator & Standard Sanitary Corp., Pittsburgh, named treasurer.

Encouraged by an upturn in sales during the last half of 1952, manufacturers of plumbing fixtures expressed optimism over 1953 business.

JORDAN TO MAKE FREEZERS

Jordan Refrigerator Co., Philadelphia, is introducing a line of upright home freezers.

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and allied metal products field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

CONTENTS

NOTE: Additional material on the National Safe Transit Program will appear in the February issue.

STATEMENT OF POLICY

The National Safe Transit Committee is simply saying to shippers:

"If you will test your packaged products by these test procedures, experience has shown that your loss and damage and your packaging costs will be acceptable minimums. It is up to each shipper to decide whether or not he will use these test procedures. The program is entirely voluntary and implies no connection with tariffs, freight rates, claim procedures or any other existing transit regulations."

NATIONAL SAFE TRANSIT COMMITTEE

1346 Connecticut Ave. N.W., Washington 6, D. C.

Foreword

Statement from the General Chairman of the National Safe Transit Committee

Last August 9 marked the fourth anniversary of the National Safe Transit Program as a strictly voluntary, cooperative movement for countering the mounting transit damage to home appliances and other finished products. As the program enters its fifth year, more than 115 manufacturers have joined in the campaign to reduce shipping losses to packaged products. Many others are in the process of being certified.

We have come a long way since August 9, 1948. Many men and organizations have given freely of their time and effort. The ground work has been completed, the foundation firmly laid, and the frame work soundly erected, but much still remains to be accomplished before we can consider our task completed.

From the beginning, the National Safe Transit Committee has been fully aware of the enormity of the task. Many previous attempts to find a solution to the handling and transit damage problem had been made, but the problem remaind as a threat to the stability of the appliance and allied products industry.

The unique nature of the Safe Transit approach to the problem is in the fact that it offers a *basic approach* to the final solution. This is represented in the standardized program of *pre-shipment testing* of the *packaged product*. In other words, the approach to the solution is based on *prevention rather than cure* methods.

The Safe Transit Program has already inspired other industries to a similar approach to their transit damage problems. Many individual companies have already volunteered information that their losses and costs have been reduced by very sizeable percentages. National Safe Transit Committee members are unpaid volunteers and have unselfishly devoted their time and efforts to this worthy cause. It was gratifiying to them when the Association of American Railroads, the American Trucking Associations, and the American Trade Association Executives each presented citations based on the Safe Transit Program for outstanding service to American industry. We have agreed to continue our efforts unabated, envisioning the use of National Safe Transit as a valuable tool for *all* companies within the scope of the program.

R. F. Bisbee

This nation-wide program is reducing packaging and shipping losses

a voluntary cooperative program which is materially reducing both manufacturers' costs and in-transit damage and handling losses on packaged products in the appliance and allied products industries

AS a result of the monetary loss sustained by both shippers and carriers because of increased losses and claims during the late 1940's, the National Safe Transit Program was initiated. The fourth anniversary of the actual inception of a working program under an organized committee was last August 9.

Today, more than 115 manufacturers of home appliances and allied products have been certified under the pre-shipment testing plan established by the National Safe Transit Committee. A very high percentage of the total production of major home appliances is now represented by these certified companies (see listing on Page ST-16).

The program, which is of a strictly voluntary and cooperative nature, has been acclaimed by manufacturers, packaging and materials handling engineers, laboratories, associations, and carrier groups, as a valuable contribution to the improvement and shipability of packaged finished products, and the reduction of packing and shipping losses.

Basic objectives

The basic objectives of the NST Committee include the expansion of a practical program for reducing damage to *packaged products* during handling and while in transit, and enlisting the cooperation of manufacturers of home appliances and allied products for putting such a program into operation.

Industry's part in the cooperative program consists of a proven pre-shipment testing plan that will predetermine the ability of packaged products to withstand normal handling *from the production line to the consumer.*

The National Safe Transit Committee confines its activities to test procedures for *packaged products* only — neither the package nor the product is considered separately. It is not the Committee's intent to interfere with the prerogative of the individual manufacturer in his design, fabrication or packaging techniques.

Pre-shipment tests as devised will determine whether the *packaged product* will stand or fall on the performance of the whole. Structural strength built into an article to overcome inadequate packaging is costly and unreliable. Packaging strength sufficient to protect an article with a structural weakness is costly and undesirable. In both cases, transit damage will likely be excessive. A change in the package, a change in the product, or a change in both — made on the basis of tests established by the Committee — are left wholly within the manufacturer's province.

PREMISE

All manufacturing, engineering, and quality efforts are in vain if the product reaches its destination in a damaged condition.

An investment that pays

Manufacturers not now using the testing plan may procure all necessary detailed information from the following pages. In brief, the manufacturer need install only two simple pieces of test equipment (vibration and impact) for products weighing over 100 lbs., with a single instrument required for calibration purposes. For products weighing less than 100 lbs., a simple drop tester is all that is required. For a total of from $2,000 to $2,500, a manufacturer may install all needed equipment for conducting pre-shipment tests and for periodic control testing.

As an alternative, manufacturers may rely on established NST-certified laboratories for conducting the pre-shipment tests and certifying to the results (see laboratory listing on Page ST-24).

In conducting the pre-shipment tests, the magnitude of the shocks imposed on a *packaged product* by ordinary hazards in handling and transportation can be accurately measured with the approved test equipment. The NST Pre-Shipment Test Procedures are based on the reproduction of these shocks in the manufacturer's plant or in the testing laboratory, and, properly applied, they will reveal the "shipability" of the *packaged product.* These are strictly *performance tests.* The manufacturer must then determine for himself the causes of any failures — whether it is in his container, his product design, or both.

The manufacturers program

Project I covers pre-shipment tests for packaged units weighing 100 to 1,000 lbs. Project 1-A is for packaged units less than 100 lbs. These projects are now being widely used by many manufacturers to effectively reduce their damage losses. Complete details of the plan for product manufacturers are presented in detailed description of the following tests for Project I and I-A.

Technical planning division sponsors field research

The Technical Planning Division of the NST Committee was respon-

to Page ST-20 →

Safe Transit test equipment

two test machines and one instrument for Project 1 — two testing devices for Project 1-A

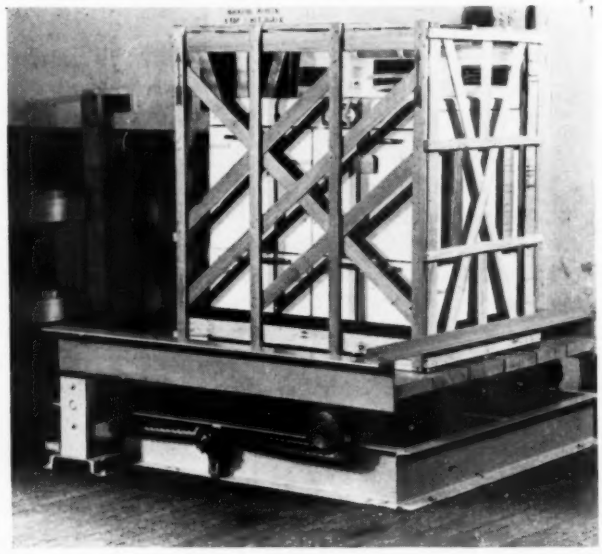
PROJECT I

(for packaged products over 100 lbs.)

Right: Equipment for determining the ability of the packaged product to withstand vibration shocks encountered during transportation. Conditions simulated include: resonance, flat car wheels, rail joints, rough road bed or roadways, car sidesway, etc.

Below: Equipment which simulates the longitudinal shocks and impacts as received in actual shipment during various kinds of transportation. (Simulates handling shocks) Black arrow on crate indicates the proper position of the recording instrument on mounting board for accurate measurement of shocks.

Vibration testing machine



Conbur incline impact testing device

Equipment Costs

Only three equipment items required for Project 1: Conbur impact testing device, vibration testing machine, and instrument for checking the Conbur. Total cost reported by manufacturers is from $2000 to $2500.

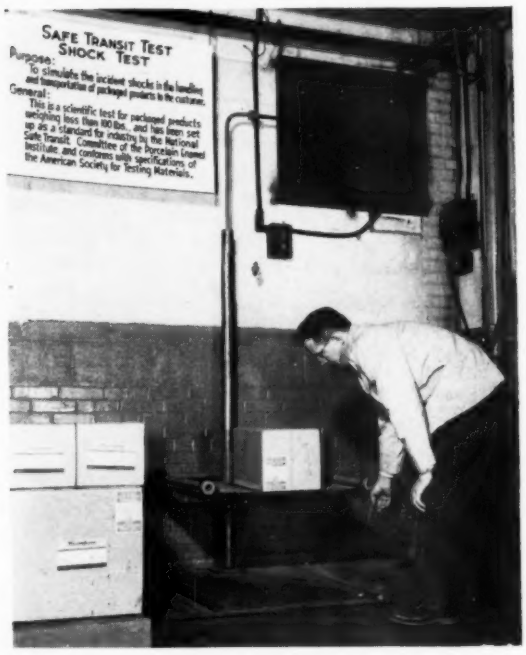
The divided table drop tester for Project 1-A costs from $100 to $150.

The Sub-Committee of the Technical Planning Division will advise with all manufacturers seeking certification to make sure that the operation of all equipment is clearly understood.

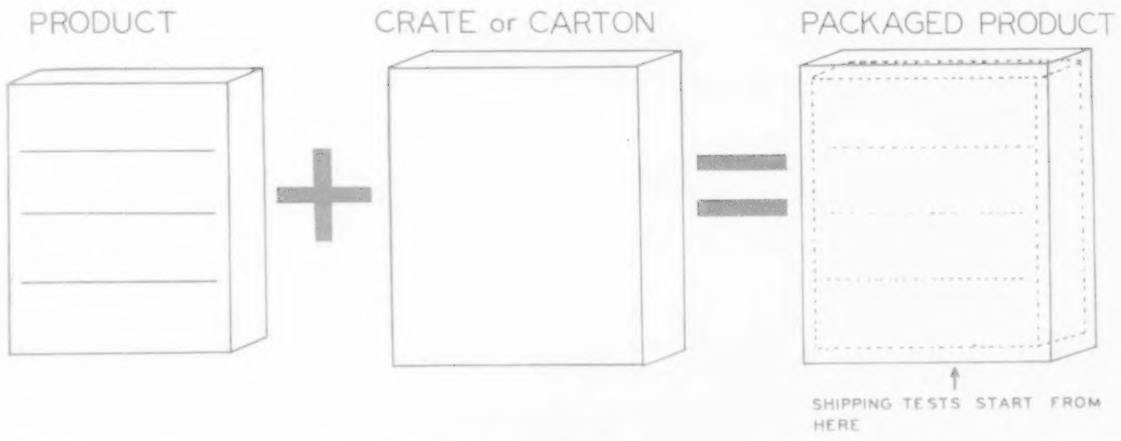
PROJECT I-A

(for packaged products under 100 lbs.)

Divided table drop tester



This drop tester is used to simulate the shock incident to the handling in transportation of products under 100 lbs.



Testing procedure for Project I

THIS procedure for Project I of the National Safe Transit Program, as developed by the Technical Planning Division of the National Safe Transit Committee, covers testing of packaged products weighing 100 to 1000 pounds as prepared for transportation, and supersedes all previous procedures.

Test cycle shall consist of:

1. Vibration Test
2. Impact Test

Tests shall be conducted in the above order.

Vibration test equipment

L. A. B. or Seely Package Tester or other equipment producing equivalent results.

Test procedure

The packaged product shall be placed on the table of the vibration tester; fences may be attached to the test table suitable for the product being tested. Vibration frequency shall be such that the packaged product leaves the table momentarily at some interval during the vibration cycle (equivalent to acceleration of "lg+"). The test shall be conducted for a minimum of one hour.

Note: A simple method of determining "lg+" is to advance the cycle of vibration until a thin piece of cardboard can be inserted between one bottom edge of packaged product and the platform of the machine.

Impact (longitudinal shock) test equipment

The Conbur Incline testing device or other equipment producing equivalent results.

A shock recorder known as RS two-way recorder No. 2W 330, or equivalent.

Test procedure

The container to be tested shall be placed on the dolly with the face or edge which is to receive the impact projecting two inches beyond or flush with the forward end of the dolly.

The shock recorder shall be positioned on the packaged product to record the maximum shock received during the impact test. This instrument should be mounted on a special mounting board. The mounting board should be as long as the side of the container on which it is mounted. The recorder should be placed so that a center line through the length of the recorder is at right angles to the plane of the backstop. (On solid wooden boxes no mounting board is necessary).

When conducting the test the dolly and container shall be drawn up the incline to the predetermined position (the position shall be such as to produce impact into at least the 1st quarter of the 5th zone of the shock recorder) and released.

This test shall be repeated so that both sides, front, back and bottom, on packaged products having a definite skid bottom (where the package is intended to be shipped) and *all six* faces on others, are subjected to impact. This shall constitute a complete standard impact test. The position of the container on dolly and the sequence in which the faces or edges are subjected to impacts may be at the option of the manufacturer and will depend on the packaged product under test.

The packaged product shall be considered to have satisfactorily passed this test, if the product is free from damage upon unpacking.

The number of Packaged Products to be tested is left to the judgment of the manufacturer; however, the sample should be sufficiently large to assure valid results.

Note: When it is desired to create a hazard to concentrate the impact at any particular point of the packaged product attach securely a 4 x 4 wood member across the face of the backstop at the point where it will make the desired contact.

Project 1-A . . . . . *next page* →

Testing procedure for Project I-A

THIS procedure for Project 1-A of the National Safe Transit Program covers testing of packaged products, both single and multiple packed, weighing under 100 pounds as prepared for transportation.

Test cycle shall consist of:

1. Vibration Test
2. Drop Test

Tests shall be conducted in the order indicated.

Vibration test equipment

L.A.B. or Seely Package Tester or other equipment producing equivalent results.

Test procedure and performance limits

The packaged product shall be placed on the table of the vibration tester; fences may be attached to the test table suitable for the product being tested. Vibration frequency shall be such that the packaged product leaves the table momentarily at some interval during the vibration cycle (equivalent to acceleration of "lg+"). The test shall be run for a minimum of one hour.

Note: A simple method of determining "lg+" is to advance the cycle of vibration until a thin piece of cardboard can be inserted between one bottom edge of the packaged product and the platform of the machine.

Drop test equipment

The apparatus shall consist of the following:

(a) Divided table top drop tester such as Acme Drop Tester or other equipment producing equivalent results.

(b) Hoist with suitable sling tripping device. Surface on which package is to be dropped must be a flat firm base (such as steel, concrete, etc.).

Test procedure and performance limits procedure

The procedure for identifying faces, edges and corners of containers shall be as follows:

(a) Facing one end of the container, with the manufacturer's joint, if any, on the observer's right:
Designate the top of the container as one.
The right side as two.
The bottom as three.
The left side as four.
The near end as five.
The far end as six.

(b) Identifying edges by numbers of two faces that form that edge:
Example:
1-2 identifies the edge formed by the top and right side.
2-5 the edge formed by the right side and the near end.

(c) Identifying the corners by the numbers of the three faces that meet to form that corner.
Example:
1-2-5 identifies the corner formed by the top, right side, and the near end.

The packaged product shall be dropped from the prescribed height (see performance limits) in the following sequence which constitutes a drop test cycle:

(a) A corner drop on the 5-1-2 corner.

(b) An edge drop on the shortest edge radiating from that corner.

(c) An edge drop on the next shortest edge radiating from that corner.

(d) An edge drop on the longest edge radiating from that corner.

(e) A flatwise drop on one of the smallest faces.

(f) A flatwise drop on the opposite smallest face.

(g) A flatwise drop on one of the medium faces.

(h) A flatwise drop on the opposite medium face.

(i) A flatwise drop on one of the largest faces.

(j) A flatwise drop on the opposite large face.

Performance limits

1. Weight of Packaged Product — 50 pounds and under. Articles — Single or multiple packaged products such as washing machine tubs, table tops, stove panels, etc. Drop — 24".

1a. Weight of Packaged Product— Over 50 pounds and under approximately 100 pounds.
Articles — as in 1.
Drop — 12" minimum or 72" on Conbur (optional) *

2. Weight of Packaged Product — 50 pounds and under.
Articles — Completely assembled products (and allied parts) such as roasters, cookers, hotplates, etc.
Drop — 18".

2a. Weight of Packaged Product— Over 50 pounds and under approximately 100 pounds.
Articles — As in 2.
Drop — 12" minimum or 72" on Conbur (optional) *.

3. Weight of Packaged Product — 50 pounds and under.
Articles — Holloware.
Drop — 12" minimum.

3a. Weight of Packaged Product— Over 50 pounds and under approximately 100 pounds.
Articles — As above.
Drop — 12" minimum or 72" on Conbur (optional) *.

The packaged product shall be considered to have satisfactorily passed this test, if upon unpacking, the product is free from damage.

The number of packaged products to be tested is left to the judgment of the manufacturer; however, the sample should be sufficiently large to assure valid results.

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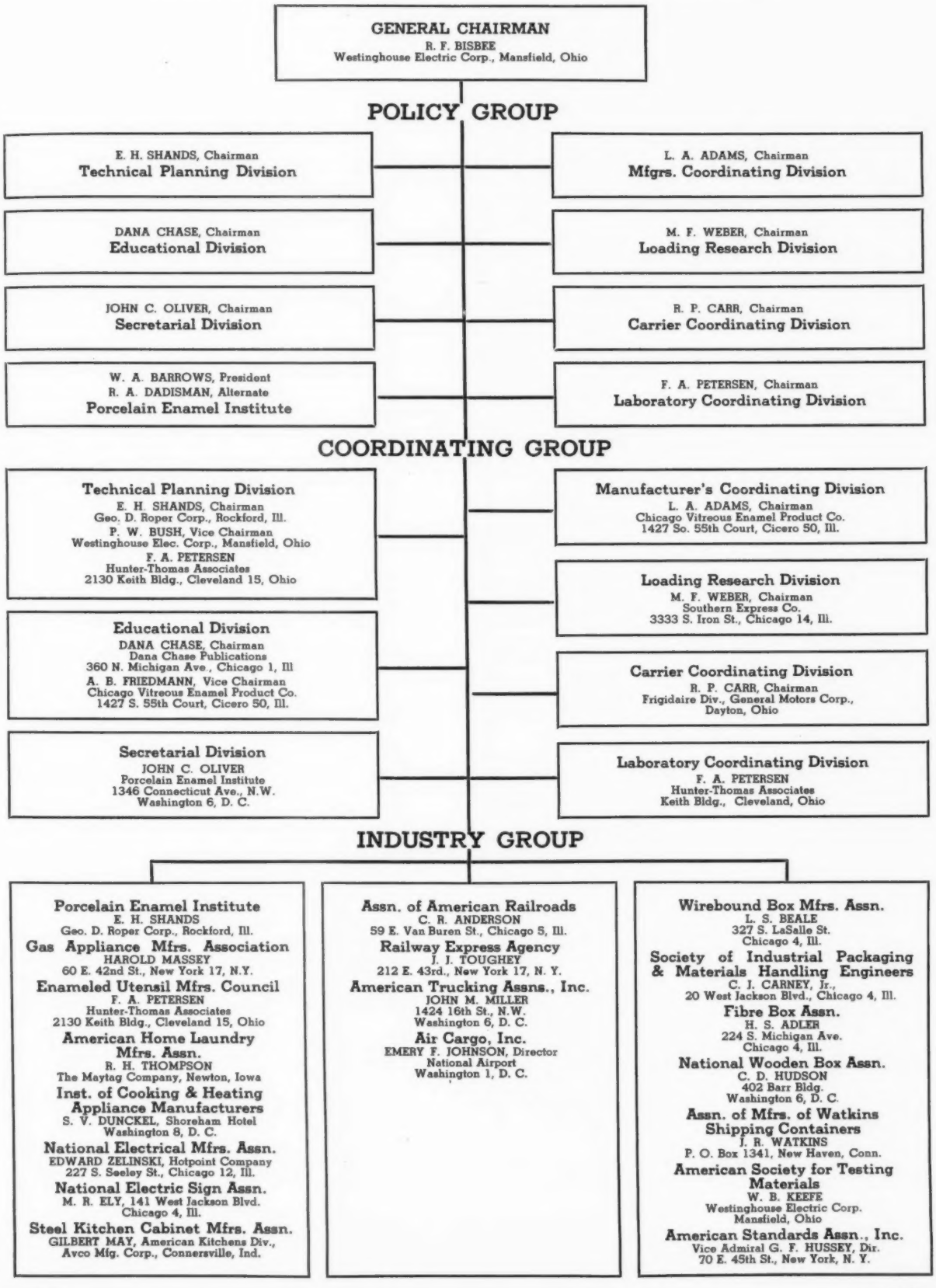
* If the use of Conbur Incline Testing Device is elected, the sequence of the test will be as described under Drop Test.

NATIONAL SAFE TRANSIT COMMITTEE



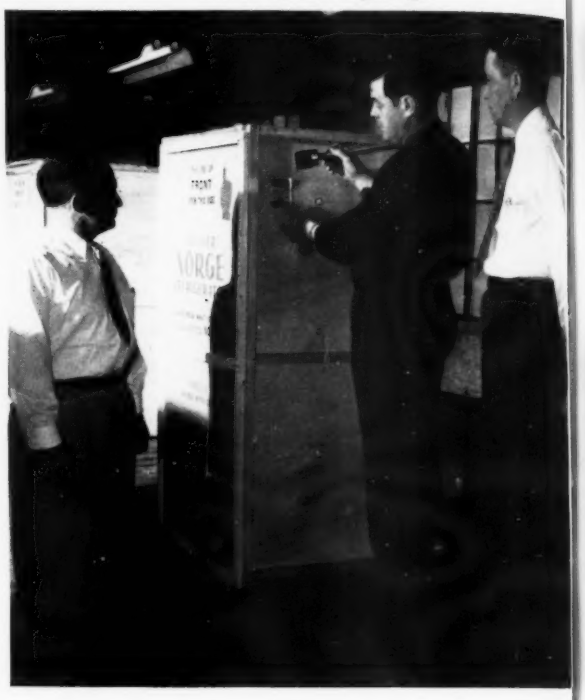
WHAT CERTIFIED

WESTINGHOUSE — "Reduction in losses before pre-shipment tests was 3%, while in 1951 it was .8 of 1%" — R. F. Bisbee, mgr, of quality control.

SERVEL — "Damage reports have decreased since we began pre-shipment tests" — Carlyle Stoltz, crating engr.

KUEHNE — "NST label tells customers that we are always striving to produce a better product in better package" — H. W. Williams, product engr.

NORGE — "NST measures, with improvements in carrier handling brought us from a high percentage of damage in 1948 to a negligible amount in 1951" — G. Zorn, crating engr.



COMPANIES SAY

NEWARK STOVE — "All stores in Sears, Roebuck chain, to whom we sell ranges, have been made aware of the Label and what it represents" — L. S. Richardson, merchandise mgr.

APEX ELECTRICAL — "We are confident the use of NST labels has aided considerably in original handling throughout our plant, and subsequent rehandlings to destinations" — J. M. Flynn, traffic manager.

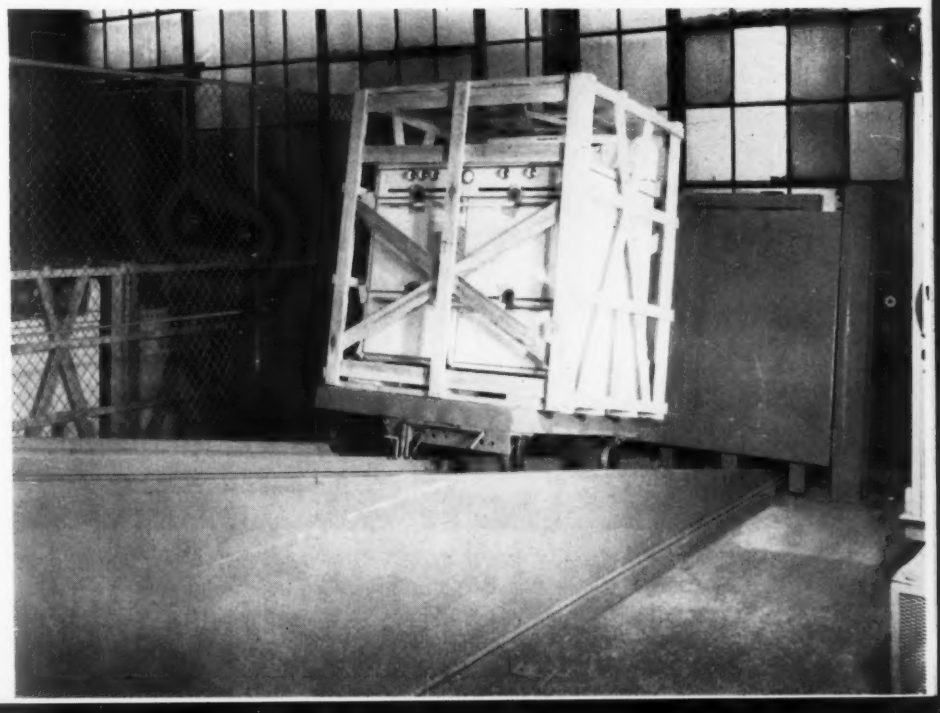
REPUBLIC STAMPING — "Have been pleasantly surprised at being able to develop some ways of packing that actually represent savings" — W. H. Allman, works staff manager.

TAPPAN STOVE — "New crate designed to resist the standard NST tests turned out to be less expensive than the old one" — G. L. Dobson, chief production engineer.

DUCHESS APPLIANCE — "Reduced losses by subjecting packaged products periodically to NST tests provided for us to qualify for the Safe Transit Label" — F. H. Greneisen, production engr.

AGIC CHEF — "Percentage of maged ranges fell from over % to less than 2%" — R. F. Schoenbeck, chief product engr.

ROPER — "With daily NST testing we reduced damage in transit to below 1% . . . also reduced crating cost 25%" — E. H. Shands, dir. of engr. & development.



WHAT CERTIFI ON

(see more "photo case histori the Fe

KRESKY — "Reduction of damage in transit has been achieved almost 100% by us . . . . . no shipping damage due to container failure." — Lee Bacon, general traffic manager.

ING-RICH — "At time of certification advised all our customers of that fact" W. L. Maish, asst. sales mgr.

A. O. SMITH — "Many indications in the field that the Safe Transit program is gaining wide attention and respect" — Waldo Higgins, chief engineer.

IFIE OMPANIES SAY

e histori he February issue of *finish*)

MOFFATS — "Damages on an overall picture were 24%; this has now been reduced to 2% through our NST tests and with the cooperation of our railroads" — H. W. Bonner, pack. engr.

HOTPOINT — "NST enabled us to make definite constructive suggestions to our design engineering dept." — Edw. Zelinski, pack. engr.

←
LINDEMANN & HOVERSON — "Damage to merchandise in transit at present time is practically nil" — E. J. Thomas, chief engineer.

DEEPFREEZE — "NST enabled us to obtain regular definite proof of reliability of our packaging methods" — D. H. Moulton, design engr.

CONTINENTAL — "While company has never suffered severe losses, NST tests revealed certain weaknesses that since have been corrected" — K. Eisinga, vice president.

115 Safe Transit Certifications

THE following companies are certified under the National Safe Transit Program.

Active Tool & Manufacturing Co.
Detroit, Michigan
Admiral Corporation
Chicago, Illinois
AllianceWare, Inc.
Alliance, Ohio
Altorfer Bros. Company
Peoria, Illinois
American Kitchens Division
Avco Mfg. Corp.
Connersville, Indiana
Apex Electrical Manufacturing Co.
Cleveland, Ohio
Automatic Washer Company
Newton, Iowa
Barrows Porcelain Enamel Company
Cincinnati, Ohio
Beam Manufacturing Company
Division of Solar Corporation
Webster City, Iowa
The Bellaire Enamel Company
Bellaire, Ohio
Belmont Stamping & Enameling Co.
New Philadelphia, Ohio
Bendix Home Appliances
Division — Avco Mfg. Corp.
South Bend, Indiana
Boston Stove Foundry Company
Reading, Massachusetts
Bryant Heater Division
Affiliated Gas Equipment, Inc.
Cleveland, Ohio
Bryant Heater Division
Affiliated Gas Equipment, Inc.
Indianapolis, Indiana
Caloric Stove Corporation
Topton, Pennsylvania
Canadian General Electric Co., Ltd.
Montreal, Quebec, Canada
Canton Stamping & Enameling Co.
Canton, Ohio
Central Rubber & Steel Corporation
Findlay, Ohio
Chambers Corporation
Shelbyville, Indiana
Chicago Vitreous Enamel Product Co.
Cicero, Illinois
Conlon Bros. Mfg. Co.
Chicago, Illinois
Conlon-Moore Corporation
Chicago, Illinois
Continental Water Heater Co.
Los Angeles, Calif.
Cribben and Sexton Company
Chicago, Illinois
Crosley Division, Avco Mfg. Corp.
Richmond, Indiana
Crosley Division, Avco Mfg. Corp.
Nashville, Tennessee
Crunden Martin Manufacturing Co.
St. Louis, Missouri
Davis Products Co.
Niles, Michigan
Day & Night Division
Affiliated Gas Equipment, Inc.
Monrovia, California
Dearborn Stove Company
Chicago, Illinois
Deepfreeze Appliance Division
Motor Products Corporation
North Chicago, Illinois
Detroit-Michigan Stove Company
Detroit, Michigan
The Dexter Company
Fairfield, Iowa
Dixie Foundry Company, Inc.
Cleveland, Tennessee
Duchess Appliance Manufacturing Co.
Alliance, Ohio
Duo-Therm Division
Motor Wheel Corporation
Lansing, Michigan
Eagle Foundry Company
Belleville, Illinois
The Enamel Products Company
Cleveland, Ohio
Fedders-Quigan Corporation
Buffalo, New York
Federal Enameling & Stamping Co.
Pittsburgh, Pennsylvania
Firestone Steel Products
Akron, Ohio
Firestone Steel Products
Wyandotte, Michigan
The Fletcher Enamel Company
Dunbar, West Virginia
Florence Stove Company
Kankakee, Illinois
Florence Stove Company
Lewisburg, Tennessee.
The Floyd-Wells Company
Royersford, Pennsylvania
Frigidaire Division
General Motors Corporation
Dayton, Ohio
General Electric Company
Erie, Pennsylvania
Geneva Modern Kitchens, Inc.
Geneva, Illinois
Globe American Corporation
Kokomo, Indiana
Hardwick Stove Company
Cleveland, Tennessee
Haskell Manufacturing Co., Inc.
Pittsburgh, Pa.
Heintz Manufacturing Company
Philadelphia, Pennsylvania
Holland-Rieger Division
Apex Electrical Mfg. Co.
Sandusky, Ohio
Hotpoint Company
Chicago, Illinois
Ingram-Richardson, Inc.
Frankfort, Indiana
International Harvester Company
Evansville, Indiana
Jordon Refrigerator Co., Inc.
Philadelphia, Penna.
Kaiser Metal Products, Inc.
Bristol, Pennsylvania
Kresky Manufacturing Co., Inc.
Petaluma, California
Kuehne Manufacturing Co.
Mattoon, Illinois
Landers, Frary & Clark
New Britain, Connecticut
A. J. Lindemann & Hoverson Co.
Milwaukee, Wisconsin
Lisk-Savory Corporation
Buffalo, New York
Magic Chef, Inc.
Cleveland, Ohio
Magic Chef, Inc.
Lorain, Ohio
Magic Chef, Inc.
St. Louis, Missouri
Majestic Manufacturing Co.
St. Louis, Missouri
Malleable Iron Range Company
Beaver Dam, Wisconsin
Malsbary Manufacturing Co.
Oakland, California
The Maytag Company
Newton, Iowa
McCray Refrigerator Company, Inc.
Kendallville, Indiana
Meadows Division, Thor Corporation
Bloomington, Illinois
Midwest Manufacturing Company
Division of Admiral Corp.
Galesburg, Illinois
Moffats, Limited
Weston, Ontario, Canada
The Moore Enameling & Mfg. Co.
West Lafayette, Ohio
Mt. Vernon Furnace & Mfg. Co.
Mt. Vernon, Illinois
Murray Corporation of America
Scranton, Pennsylvania
Murray Manufacturing Company
Murray, Kentucky
Nash-Kelvinator Corporation
Grand Rapids, Michigan
Nesco, Inc.
Milwaukee, Wisconsin
Newark Stove Company
Newark, Ohio
Norge Division, Borg-Warner Corp.
Effingham, Illinois
Norge Division, Borg-Warner Corp.
Herrin, Illinois
Norge Division, Borg-Warner Corp.
Muskegon Heights, Michigan
Odin Stove Manufacturing Co.
Erie, Pennsylvania
O'Keefe & Merritt Company
Los Angeles, California
Payne Furnace Division
Affiliated Gas Equipment, Inc.
Monrovia, California
Perfection Stove Company
Cleveland, Ohio
Philco Corp., Refrigerator Division
Philadelphia, Pennsylvania
Prentiss-Wabers Products Co.
Wisconsin Rapids, Wisconsin
Quincy Stove Mfg. Co.
Quincy, Illinois
Ranney Refrigerator Company
Greenville, Michigan
Remington Corporation
Auburn, New York
Republic Stamping & Enameling Co.
Canton, Ohio
Geo. D. Roper Corporation
Rockford, Illinois
Milton Roy Company
Philadelphia, Pennsylvania
Samuel Stamping & Enameling Co.
Chattanooga, Tennessee
Seeger Refrigerator Co.
Evansville, Indiana
Seeger Refrigerator Co.
St. Paul, Minnesota
Servel, Inc.
Evansville, Indiana
A. O. Smith Corporation
Kankakee, Illinois
Speed Queen Corp., Ironer Division
Algonquin, Illinois
The Tappan Stove Company
Mansfield, Ohio
Temco, Inc.
Nashville, Tennessee
Thor Corporation
Chicago, Illinois
United States Stamping Company
Moundsville, West Virginia
Victor Products Corporation
Hagerstown, Maryland
Westinghouse Electric Corporation
East Springfield, Mass.
Westinghouse Electric Corporation
Mansfield, Ohio
Westinghouse Elec. Corp.,
Beaver, Pa.
Westinghouse Electric Corp.
Sunbury, Pennsylvania
S. S. White Dental Mfg. Co.
Staten Island, New York
York Corporation
York, Pennsylvania

Custom Protection – prevents shipping damage as no other packaging method known!

How often do *your* products arrive at their destinations scratched, cut or damaged in any way? Once a year – once a month – or oftener? If you had a single instance of damage in transit last year, it may be time to change to *custom protection* with Kimberly-Clark Interior Packaging – KIMPAK*. Companies like the Speed-Queen Corporation who revised and streamlined their packaging operations have found that nothing else protects so efficiently, so economically.

KIMPAK is soft, grit-free, easy to apply as wrapping paper. It will absorb up to 16 times its own weight in moisture within 30 seconds – protect against shock, scratching, pressmarking, vibration. KIMPAK is feather-light, yet gives more protection than most materials of far greater weight and density. Many concerns have found this important in reducing the size and weight of their packages, to offset recent postal rate increases.

Regardless of the product you manufacture, KIMPAK – in its many specifications – can be "tailored" to fit your particular needs. Today – investigate *custom protection* with KIMPAK. For complete information, write to Dept. K-13, Kimberly-Clark Corporation, Neenah, Wisconsin.

KIMPAK INTERIOR PACKAGING

*T. M. REG. U. S. & FOREIGN COUNTRIES

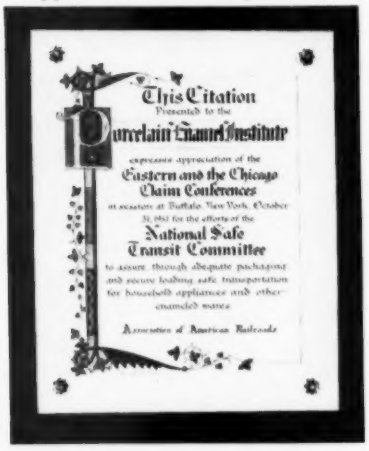
A Product of Kimberly-Clark

ST-17

National Safe Transit citations

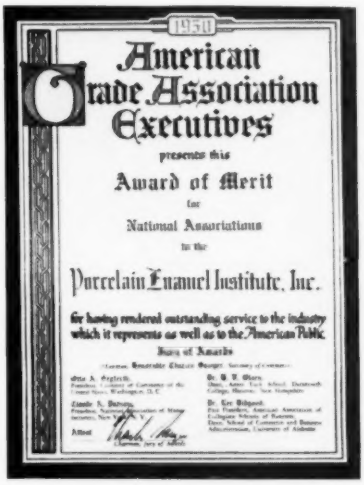
awarded to the National Safe Transit Committee and its sponsors

Below: A citation from the Association of American Railroads for efforts of the National Safe Transit Committee to assure — through adequate packaging and secure loading — safe transportation for household appliances and allied products.


This Citation
Presented to the
Porcelain Enamel Institute
expressive appreciation of the
Eastern and the Chicago
Claim Conferences
at sessions at Buffalo, New York, October
31, 1951 for the efforts of the
National Safe
Transit Committee
to assure through adequate packaging
and secure loading safe transportation
for household appliances and other
enameled wares
Association of American Railroads

Above: Citation from the American Trucking Associations, Inc. "for outstanding contribution to safe transportation."

Below: Citation from American Trade Association Executives to the NST-sponsoring association "for having rendered outstanding service to the industry and the American public."


1950
American
Trade Association
Executives
presents this
Award of Merit
for
National Associations
to the
Porcelain Enamel Institute, Inc.
for having rendered outstanding service to the industry
which it represents as well as to the American Public.
Board of Awards

Safe Transit label has gained international recognition

THE distinctive NST Label, which is being used at the rate of approximately 15,000,000 a year, has gained international recognition as assurance that the PACKAGED PRODUCTS so labeled have been scientifically pre-shipment tested to withstand normal shipping and handling.

Evidence that the Label is commanding full attention is exemplified by the programs of the carriers to acquaint their personnel with the Label and the program for which it stands.

The Association of American Railroads, for example, has publicized the NST program in a multiplicity of ways to its handling personnel, as have many individual railroads. AAR has prepared and distributed several thousand posters for erection at freight house and handling points, calling attention to the Label. The poster reminds the shipping employees to "learn to recognize these requests" and "comply with our patron's wishes."

Similarly, the trucking industry has sent special bulletins to its people and written specific trade journal articles calling attention to the Label. One bulletin from the American Trucking Association's National Freight Claim Council to its membership pictured the Label and urged careful handling.

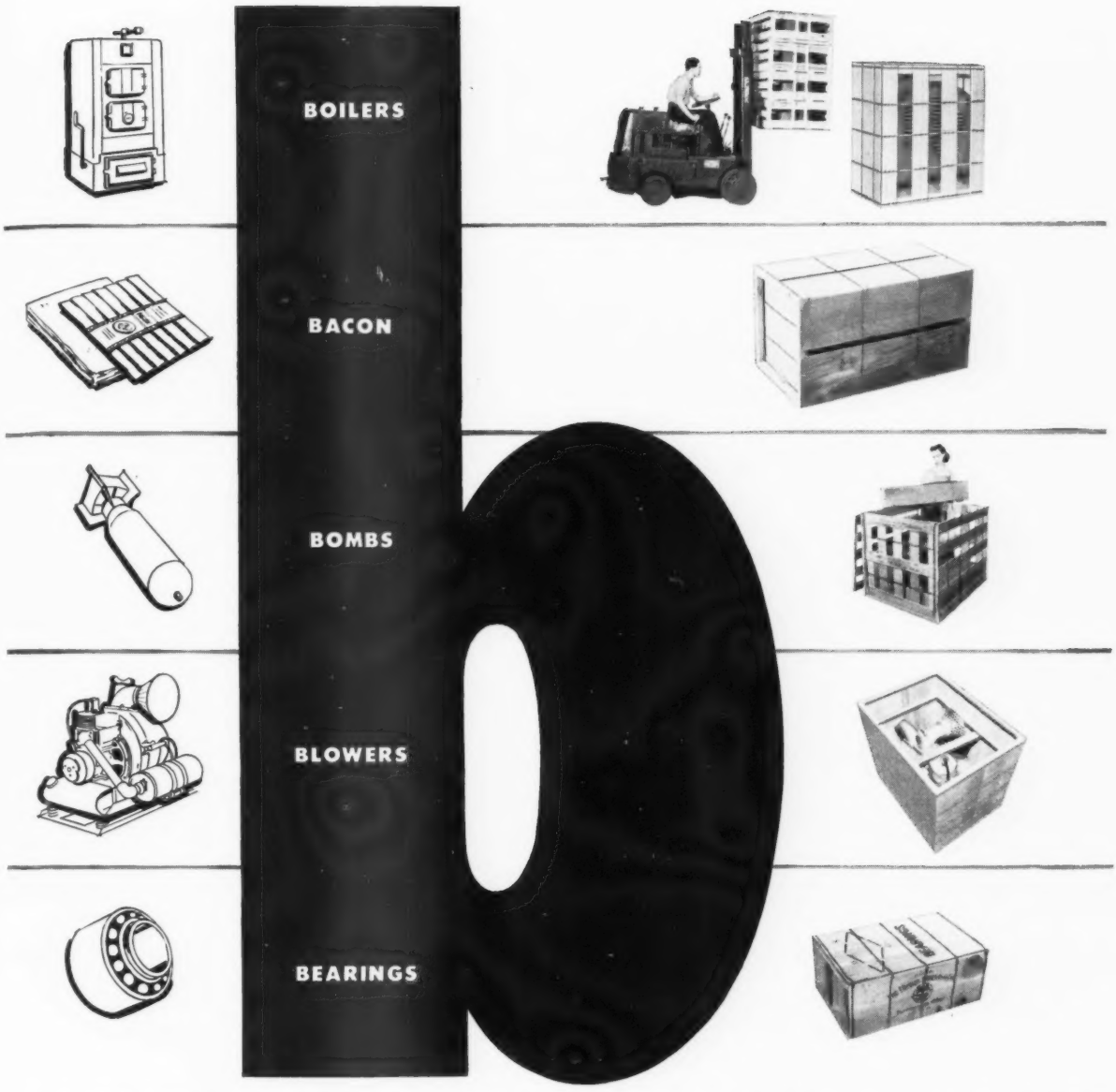

PRE-TESTED
SAFE TRANSIT
SHIPMENT
The manufacturer certifies that this PACKAGED PRODUCT meets the pre-shipment testing standards established by the National Safe Transit Committee and will withstand NORMAL transportation and handling hazards.
NATIONAL SAFE TRANSIT COMMITTEE
SAFE TRANSIT
1346 Conn. Ave., N. W. Washington 6, D. C.
MAKE
SAFE HANDLING
YOUR JOB!

When distributors and dealers see this Label, they know that the manufacturer has taken all necessary protective measures known to shipping science to reduce damage losses to the products he ships.

The airlines and Railway Express in the same manner have emphasized the Label to their representatives through various educational means.

Added emphasis to the National Safe Transit Program and the allied Label activities is resulting from the interest of several branches of the Government services in NST. These agencies are considering Safe Transit as an addition to their present purchasing specifications for major appliances and allied products. While the Label will not necessarily be required by the services, Government officials, nevertheless, have indicated that the Label would undoubtedly be a favorable factor for use by companies supplying products under these specifications.

Manufacturers using the Label are merchandising its meaning to distributors and dealers to indicate their interest in delivering their finished products damage free and in "factory fresh" condition.



WIREBOUND BOXES AND CRATES

handle them all—from A to Z

Whether your product is large, small, rugged, fragile, heavy or light, it will ship *better, safer* and *more* economically in a Wirebound Container.

Prove it to yourself!

Wirebound
BOXES & CRATES

wood and steel for strength and resiliency

MAIL THIS COUPON, TODAY!

WIREBOUND BOX MANUFACTURERS, ASSN.
Room 1154, 327 South LaSalle Street, Chicago 4, Illinois

Gentlemen:

☐ *I want the A.B.C.'s about Wirebounds. Send a free copy of your booklet, "What to Expect from Wirebound Boxes and Crates."*

☐ *Please have a Wirebound sales engineer give me the facts as they apply to our product.*

Name _____ Position _____

Firm _____

Street and Number _____

City _____ Zone _____ State _____

Our Product is _____ It Weighs _____

This nation-wide program is reducing packaging and shipping losses

(Continued from Page ST-5)

sible for the development of the pre-shipment testing procedures, and conducts close follow-up of all applications for certification.

A Technical Sub-Committee sponsors extensive field projects in cooperation with all carriers — rail, truck, and air. Summarized results of typical tests have been published in booklet form: "*What Happens to Your Product in Transit.*"

Loading research reports

The Loading Research Division has developed and published a complete set of recommendations for loading major appliances in railroad cars: "*Safe Transit — A Must for Home Appliances.*" This booklet is complete with photographs and diagrams of recommended loading, bracing, blocking and unloading methods. The Division is presently developing a set of recommendations for the loading of trucks.

An article entitled "A Practical Pre-Shipment Test for Carload Shipping," published in April, 1952, tells how a leading appliance manufacturer tests complete carload shipments in the local freight yard. The article tells how a loaded freight car, used as a giant packaged product, is subjected in testing to what might be described as a giant Conbur shock test. A switch engine pushes the loaded car, and permits it to roll against a backstop of 20 freight cars. The tests provide the company a safety factor of "over double what is commonly termed rough handling by the railroads."

Labels and car placards

The NST labeling plan forms an important link between the manufacturers, the carriers and the distributors and dealers in the loss-reduction program.

NST labels on packaged products proclaim that the manufacturer has taken all necessary protective measures now known to shipping science to reduce damage losses on the products he ships. Labels are being used at the rate of 15,000,000 per year.

The carriers' program

The carriers responsible for handling the packaged products in transit, including railroads, truck lines and airlines are playing an important part in the NST program. In-transit research into the causes of damage, education of employees and handlers, and improvement of rolling stock are among the problems being tackled in an aggressive manner.

Strictly cooperative

It should be stressed that the National Safe Transit Program is strictly a voluntary and cooperative program. All of the technical work, testing and educational work required of the working committees is executed by the individual members on their own or their respective company's time without remuneration of any kind.

The remarkable progress of the program is attributable to the efforts of this group and the wholehearted cooperation of the representatives of the cooperating associations.

Scores of manufacturers are now using the Safe Transit pre-shipment testing program and many are the reports of tangible results in improved packing, reduced costs, and reduction in shipping losses (see examples in this section).

Why You Should Join the Program

1. **Pre-shipment testing is a valuable check of product quality, and often results in cost saving through product improvement.**
2. **Pre-shipment testing assures proper package design and eliminates wasted costs resulting from "over packaging."**
3. **Pre-shipment testing assures safe delivery of finished products under any normal handling conditions.**
4. **Carrier handlers recognize the NST-labeled products as properly packaged merchandise.**
5. **NST-labeled products build dealer-distributor good will. The label proclaims that the manufacturer has taken all necessary protective measures now known to shipping science to reduce damage losses to the products he ships.**

It costs you nothing to join the Safe Transit Program

Here Is How Easy It Is for You to Participate in this Voluntary Cooperative Program

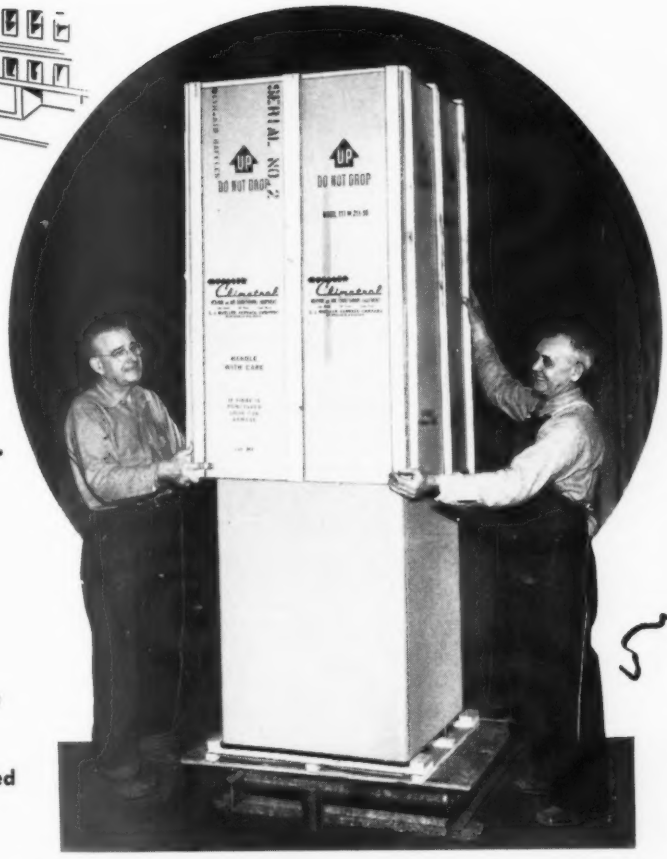
1. **Install the simple inexpensive pre-shipment testing equipment, and test your *packaged products* in accordance with the test procedures (see Pages ST-7 and ST-8).**

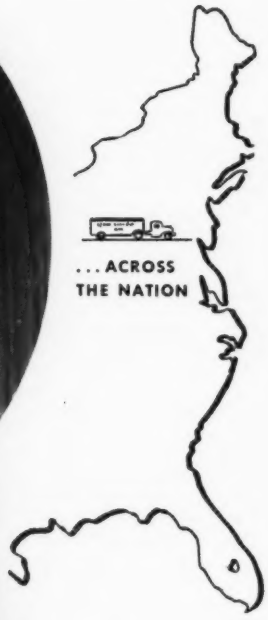
   — or —

   Submit your *packaged products* to one of the NST-certified laboratories for test (see Page ST-24).

2. **After the *packaged products* have successfully passed the prescribed tests, apply on your company letterhead to the National Safe Transit Committee headquarters, 1346 Connecticut Ave., N.W. Washington 6, D.C., for certification.**

CONTAINERS FOR
AROUND THE CORNER
DELIVERY OR..





...ACROSS
THE NATION

KIECKHEFER MILWAUKEE

Producers of...

- Watkins Containers
- Wooden Boxes
- Box Shooks
- Crates
- Pallets
- Kieckhefer *Paletboxes*
- Industrial Lumber
- Special Design Cleated Fibre Containers

DELIVER SAFELY
without a scratch...

...USE KIECKHEFER MILWAUKEE

The finest finished products can reach your customers exactly as they leave your plant —if both your product and your *container* are properly engineered to do the job.

Kieckhefer-Milwaukee offers you 50 years of practical experience in engineering and building the right container for the right product.

For many applications in the appliance and finished product field, we highly recommend the Kieckhefer-built Watkins type container — it's strong, it's light, it's easy to handle, and it keeps your product clean.

For other applications, from neon signs to industrial machinery, we will recommend the *type* of box or crate best suited to *your* needs.

Kieckhefer-Milwaukee products will deliver your products safely — economically — around the corner or across the nation.

And when you are a Kieckhefer customer, you can depend on the same kind of service and prompt delivery that built a reputation for meeting *all* delivery promise dates.

Kieckhefer-Milwaukee Containers will meet your Government Specifications

PACKAGING ENGINEERS
KIECKHEFER MILWAUKEE
FOR FIFTY YEARS

KIECKHEFER BOX AND LUMBER CO.

• WOODEN BOXES • BOX SHOOKS • CRATES • CLEATED FIBRE SHIPPING CONTAINERS •

1715 WEST CANAL STREET, MILWAUKEE 3, WIS.

NST MAIL BAG

American Gas Association Laboratories

To NST Committee:

To date, 15 manufacturers of gas-burning appliances have submitted 119 packaged products to the Pacific Coast Branch Laboratories of the American Gas Association for test under the established test procedures of the National Safe Transit Committee. The weight of these packages has varied from 3 pounds to 808 pounds.

The products include water heaters, forced-air furnaces, floor furnaces, recessed heaters, ranges, evaporative coolers, and parts for ranges and forced-air furnaces.

There is considerable interest being shown in this testing program. Several companies realize that major changes must be made in their packaging methods in order to reduce losses in transit.

It is felt that this program has been of service to West Coast manufacturers of gas-burning appliances. This fact is established by a recent comment of one manufacturer who stated: "In one case after tests at A.G.A. Laboratories, we were able to modify the crating on one of our water heaters in a manner which will realize a saving of approximately $10,000 per year on this single product."

W. H. Vogan, Manager
Pacific Coast Branch

Institute of Cooking and Heating Appliance Manufacturers

To NST Committee:

May I take this opportunity to congratulate you and your associates on the excellent progress which is being made by the National Safe Transit Program.

The Institute has always recommended this program to its members, through individual letters and in personal contacts. We are always glad to carry stories of the program in our bulletins and publications, and to give it attention in our various convention programs.

You may count on us to continue to support the NST program in every possible way.

Samuel Dunckel
Managing Director

INDUSTRIAL PACKAGING, HANDLING SHOW IN BOSTON

For the first time in its history, the annual Industrial Packaging and Materials Handling Exposition, the concurrent technical short course, and the Protective Packaging and Materials Handling Competition will be held in New England.

C. J. Carney, Jr., managing director of the Society of Industrial Packaging and Materials Handling Engineers, sponsors of the yearly triple-feature event, said the 1953 presentation will be held in Boston the week of October 18.

for greater PROTECTION *in* TRANSIT

Use DEVILCLAW BLOCKING ANGLES

SAVES TIME

THOUSANDS IN USE

SAVES MATERIAL

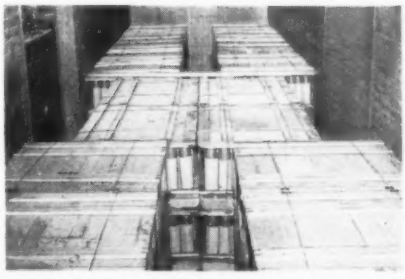
SAVES LABOR

EASY TO INSTALL

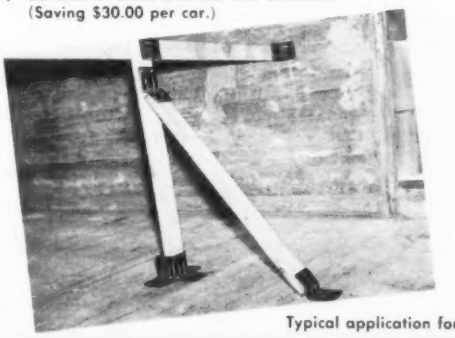
EASY TO REMOVE

* SAVED $30.00 PER R.R. CAR

Installing Devilclaw by dropping loaded pallets.



* Carload of shells blocked with Devilclaw. (Saving $30.00 per car.)



Typical application for various Devilclaw patterns.

Use Devilclaw Blocking Angles—the quick, modern method of securing crates, boxes, pallets of any size or shape while in transit.

Your packaged products "stay put" when the load is protected with Devilclaw. Your crates or boxes are in *exactly* the same position at destination as when the car was stowed.

Made of heavy gauge steel, Devilclaw Blocking Angles are available in a wide variety of patterns. They all have round corners for safe handling and embossed ribs for strength.

SHIPPERS, CARRIERS, CUSTOMERS . . . all praise Devilclaw for *superior protection* against in-transit damage. You'll praise them too once you try them—they are inexpensive and easy to use—they speed up both loading and unloading operations.

A letterhead request, referring to this advertisement, will bring samples for testing at your own plant and data on dollar savings.

CAR BLOCKING, INC. MANUFACTURERS

1952 KIENLEIN AVE. ST. LOUIS 20, MO.

BLOCKING DEVILCLAW ANGLES

INTL. PAPER RESEARCH LAB.

International Paper Company has dedicated a $400,000 laboratory at Mobile, Alabama, for basic research work in the development of new pulp and paper grades manufactured from southern forests.

Erling Riis, vice president and general manager of the southern kraft division, said the new building is probably the most modern and completely equipped pulp laboratory in the south. The research department is headed by John W. Gilbert, director of research, and G. S. Mabrey, associate director of research.

DETROIT-MICHIGAN STOVE CERTIFIED BY NST COMMITTEE

The National Safe Transit Committee has announced the certification of Detroit-Michigan Stove Co., Detroit, Michigan. Some 115 manufacturers of home appliances and allied products are now cooperating in the National Safe Transit Program.

NEW GENERAL BOX DIRECTORS

J. A. Cragwall, president, has announced the election of two new directors of General Box Company, Des Plaines, Ill. They are E. J. Sommers, president, Mid-States Steel and Wire Co., and Allen A. Ward, General Box treasurer.

UNION STEEL TRANSFERS HILDEBRAND TO ALBION PLANT

Herbert W. Hildebrand, district sales manager in Washington, D.C., for Union Steel Products Company, has been transferred to the main plant in Albion, Michigan, where he will join in the operation of the company's materials handling division.

20 SAFE TRANSIT LABORATORIES

With other certifications pending, 20 laboratories are already participating in the National Safe Transit Program.

The certified laboratories include:

American Gas Associations Labs.
Los Angeles, California

Atlas Plywood Corporation
Lawrence, Massachusetts

Chicago Mill and Lumber Company
Chicago, Illinois

Container Corporation of America
Chicago, Illinois

Container Laboratories, Inc. (2)
Chicago and New York City

Cozier Container Corporation
Cleveland, Ohio

Dura-Crates, Inc.
Indianapolis, Indiana

The Fairfield Paper & Container Co.
Baltimore, Ohio (project 1-a only)

General Box Company
Des Plaines, Illinois

The Hinde & Dauch Paper Company
Sandusky, Ohio

Inland Container Corporation
Indianapolis, Indiana

International Paper Company
Georgetown, South Carolina

The Mengel Company
Louisville, Kentucky

Ohio Boxboard Company
Rittman, Ohio

Package Research Laboratory
Rockaway, New Jersey

Packaging Service Corporation
Wyncote, Pennsylvania

The Don L. Quinn Company
Chicago, Illinois

Rathborne, Hair and Ridgway Box Co.
Chicago, Illinois

U. S. Testing Company, Inc.
Hoboken, New Jersey

SET PACKAGING SHOW DATE

The American Management Association has announced that more than 350 exhibitors and 20,000 registrants are expected at the AMA's 22nd National Packaging Exposition to be held April 20-23, in Chicago.

BALSTER BEGINS CONSULTING SERVICE ON PACKAGING, SHIPPING, TRANSPORTATION

Wilmer J. Balster has resigned as vice president and general manager

of The Don L. Quinn Co. to establish a consulting service in all phases of testing, shipping containers, and transportation, to be known as The Wilmer J. Balster Associates. He will operate initially from his home at 3511 N. Sheffield Ave., Chicago 13, Ill.

Balster had been with Quinn since 1928, with the exception of eight months in the Army and three years in the Quartermaster Container Testing Laboratories in Washington, D.C., and Chicago.

He is an active member of several committees in the following societies: Technical Association of the Pulp and Paper Industry, American Society for Testing Materials, Forest Products Research Society, Midwest Shippers Advisory Board, and Society of Industrial Packaging and Materials Handling Engineers.

HEADS CONVEYOR MFRS. ASSN.

Harry C. Davis, general manager, Kanawha Mfg. Co., Charleston, West Va., has been elected president of the Conveyor Equipment Manufacturers Association.

MATERIAL HANDLING INSTITUTE HOLDS ANNUAL MEETING

At the recent annual meeting of The Material Handling Institute, Howard M. Palmer, general sales manager of Lewis-Shepard Products, Inc., was elected president.

To help Palmer administer the educational work and services to industry, Charles B. Elledge, manager of sales, materials handling industries, General Electric Co., and Walter E. Schirmer, vice president, Industrial truck division, Clark Equipment Co., were elected as first and second vice presidents.

The Institute will continue its program of aid to industry by sponsoring exhibitions, conferences, publications and committee activities aimed at promoting greater efficiency and effectiveness in materials handling.

ADVERTISERS' INDEX

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CLASSIFIED ADVERTISING

HELP WANTED

MECHANICAL ENGINEER

Large manufacturing corporation has an opening in its Research Division for a graduate engineer with experience in the design and development of domestic laundry washers and dryers. Must be capable of heading department. Replies held in strictest confidence.

Address reply to Box 153, c/o *finish*, 360 N. Michigan Ave., Chicago 1, Ill.

PRODUCTION FOREMAN

Production foreman for expanded porcelain enameling department. Stove experience desired but not essential. Mid-west location. Modern plant. Good salary. Excellent working conditions. Replies confidential.

Address reply to Box 153-A, c/o *finish*, 360 N. Michigan Ave., Chicago 1, Ill.

ZENITH ADDING TO PACKING AND SHIPPING FACILITIES

Zenith Radio Corp., Chicago, is building a 300,000 square-foot addition to its main plant. The project will cost an estimated $3,000,000 dollars, with the new space to be used chiefly to provide added packing and shipping facilities.

MATERIALS HANDLING EDUCATION COMMITTEE APPOINTMENTS

The College-Industry Committeee on Material Handling Education has announced the following permanent appointments: Irving M. Footlik, consultant, retained as permanent secretary; D. H. Bitney, vice president, Union Steel Products Co., named chairman of finance subcommittee; and J. H. Wunsch, Silent Hoist & Crane Co., named chairman of budget sub-committee.